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HORNY GROWTHS OF THE EAR AND KELOIDS OF THE LOBULE OF THE EAR.

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N. O. POLYCLINIC.

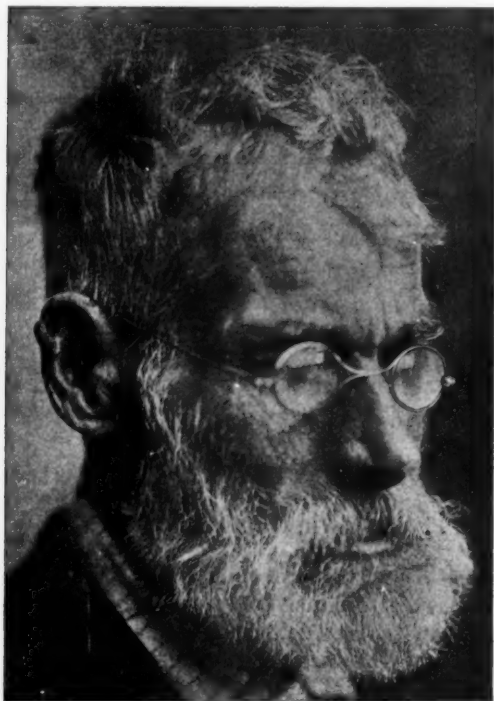
(Services of DR. A. W. DEROLDES.)

ILLUSTRATED.

The cases I report are of interest to the profession. Horny growths, on account of the few cases found in medical literature and keloids on account of the frequency with which they are met by the busy practitioner of the South, are of especial interest on account of the fact that they frequently occur after removal, the recurrent tumors occasionally assuming a malignant type, especially after repeated operations of excision have been instituted. In the preparation of this paper, I have searched dilligently the literature at my command and drawn largely on the articles coming under my observation.

OBSERVATION No. 1. April 17, 1897, J. S., white, male, aged 73, native of Germany, cabinet maker, ten years a resident of this city, presented himself at the Eye, Ear,

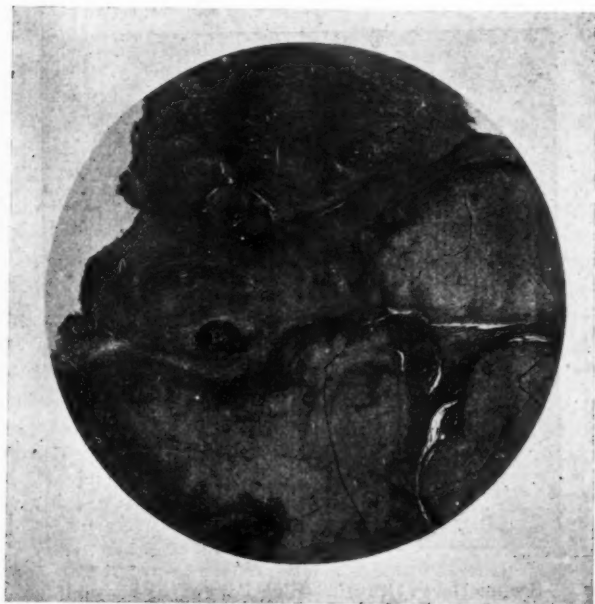
Nose and Throat Hospital with a growth on his right ear which he desired treated. He was of a superstitious disposition and objected to the use of a cutting instrument. A little persuasion induced the old gentleman to reconsider, so the day for operation was appointed. Patient was semi-intelligent but claimed he had never been sick.



Horny Growth, Right Auricle, W. M., Age 73.

General health was good, no family history of any deformity or abnormal growth. First noticed growth about two years ago which has increased gradually. Could recall no injury but thought, at first, it was what he termed "a courage bump." Has never suffered any inconvenience from the growth but desired its removal for its cosmetic effect. It was located as shown in the accompanying

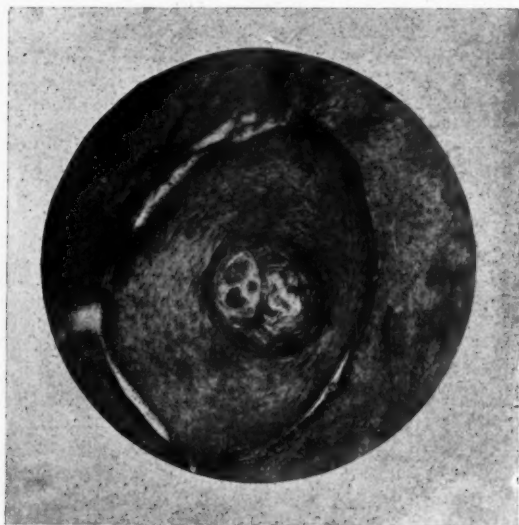
photograph, on the superior half of the antihelix of the right auricle and was $2\frac{1}{4}$ centimeters in length, extending upward and backward to the edge of the helix, $2\frac{1}{2}$ centimetres in circumference at the base and $1\frac{1}{2}$ centimetres at the apex. The vertical diametre at the base was one centimetre and the horizontal diametre was $\frac{5}{8}$ of a centimeter. You will observe from the illustration that the horn curved slightly above the



Section Horny Growth. Low Power ($\frac{2}{3}$). Showing General View of Structure.

ear. The weight of the growth, after removal, was eight decigrammes. Base of implantation was not inflamed, neither was there any pain on manipulation. The base presented a somewhat of a flattened appearance and the contour was similar to that of a horn of a Jersey bull. Through the courtesy of Prof deRoaldes, and, at that time his chief of clinic and assistant Dr. C. J. Landfried, I removed this growth, in the presence of the Polyclinic

class on the 20th day of April, 1897, by an elliptical incision deep into the tissue after which the edges were as nearly approximated as possible with two sutures over which was placed an ordinary antiseptic dressing and held in place by collodion cantharides. Parts healed nicely and patient was discharged after the fourteenth day, having only a slight cicatrix to mark the place of this unsightly growth. Twelve months after operation there was no sign of return of the growth. Throughout its entire



Section Horny Growth. High Power ($\frac{1}{5}$) Showing Detailed Structure of Columns of Cells.

course this tumor presented a moderately smooth surface, with three slightly elevated ridges and well marked furrows on anterior quadrants while the posterior quadrants exhibited a striated surface. The striæ were perfectly straight while the ridges and furrows were distinctly wedge shaped. The horn was of mahogany color with a uniform hardness, though slightly compressible, from base to apex.

Microscopical examination showed it to be composed of flat epithelium resembling large epithelial scales usually

found in the epidermis. At periphery cells were horny and did not take stain well. Whole specimen was made up of columns of cells forming rings on transverse section and separated from each other by fibrous tissue. In some parts of specimen these columns had become horny and did not take stain well, appearing in field as large areas having a yellowish color. Under high power these columns resemble the cell-nest of epithelioma, as the section was transverse to the horn. No blood vessels or nerves were observed.

OBSERVATION No. 2. While engaged in general practice at Columbia, Ala., W. H., white, male, aged 38, large, strong farmer, consulted me during 1893 for a growth on his left ear. This growth was about half the size of the foregoing one, located on the antihelix, posterior fossa. It was of traumatic origin and while comparatively hard, could be easily compressed, was of a dark-brown appearance and caused a great deal of inconvenience as patient was continually picking at it. I prescribed a simple sulphur ointment for local application, with a view of relieving the irritation and requested him to see me again in three weeks. Shortly after this, while returning from his work one evening, he was struck on this growth by the rebounding of a small branch of a tree, from which he suffered the most excruciating pain for several hours. The ear was very much swollen and five days later he awoke one morning and found tumor detached, save a few fragments which were promptly severed with a razor. This was the statement made by patient for when I saw him six months later there was not the slightest sign of the growth and there had been no return three years subsequent.

OBSERVATION No. 3. I am informed by Dr. deRoaldes that, while House Surgeon Charity Hospital he had occasion to see in the colored outdoor consultation a light mulatto over fifty years of age who presented a horny growth of somewhat similar appearance to the case reported by Cooseman. The patient disappeared from observation, never reporting after first examination.

OBSERVATION No 4. (By Cooseman.) I take special pride in reproducing the article by Dr. M. E. Cooseman, taken from the Transactions of the International Congress

of Otology, at Florence, 1895. I am indebted to Dr. Homer J. Dupuy for the translation and to Dr deRoaldes for the use of the photograph and the plaster paris model, illustrating this observation, presented him by his friend, Dr. Cooseman, while attending the Congress.

The 18 of February, 1895, a farmer, aged 71, consulted me, requesting me to remove "a button" which he carried on his right ear.



Horny Growth, Auricle, Cooseman,

HISTORY. General health good, no family history of a similar growth. Patient was never sick. This affection began about one year ago, by a slight induration which the patient scratched off with his finger nails seven differ-

ent times. A slight hemorrhage resulted from each procedure. One month after removal of the induration by this manipulation the growth recurred.

DESCRIPTION OF TUMOR. It is located on the superior half of the antihelix of the right auricle. Total vertical diameter 15 mm., circumference 45 mm., diameter of about 15 mm. Base is slightly wider than apex. Apex somewhat sharper and curved beneath the helix. It has a woody consistence. The surface of the tumor is striated in its vertical diameter. These striæ run up to the apex producing on its free surface slight inequalities. Color, dirty brown, darker toward the base. Line of demarcation is well marked between healthy surrounding skin and excrescence. Base of implantation on the skin is neither inflamed nor indurated. There is no spontaneous pain. Pressure by the finger, or inclination of patient's head toward right side, renders tumor more or less sensitive.

TREATMENT. Tumor was removed on August 7, 1895. I extracted it from the base, which I scraped energetically with a sharp curette, then cauterized with the thermocautery. Cure was complete on August 30, 1895. On the site of former tumor nothing but a smooth, elastic, superficial cicatrix remained.

MICROSCOPICAL EXAMINATION. You will first remark that base of tumor is uneven—mammellated—presenting ridges and furrows. There are corresponding inequalities on the cutaneous surface. In inferior part cells of the Malpighian bodies are intact and circular and have a nucleus in the centre. In ascending toward the apex cells become more and more flattened, the nucleus increases in length until at the summit of the tumor it forms a mere line. Lamellated structure is also to be seen; the lamelle are directed toward the principal axis of tumor and are in juxtaposition the one to the other, without any connective tissue substance intervening. Some of the lamelle are perfectly straight, others curved and wedged the one in the other. In the centre of the tumor the cells have disappeared, the nuclei only remaining, at the apex even the nuclei have disappeared. No blood vessels or nerves are to be seen.

CONCLUSION. We are dealing here with a horny growth made up of epidermal cells agglomerated together which

have taken a perpendicular instead of a horizontal course.

REMARKS—Horny growths, while observed at all times, are nevertheless of rare occurrence. They excited the wonder of the ancients to such a degree that they attributed to individuals afflicted with such growths special power of a supernatural and even a divine order. The statutes of Jupiter Ammon and the Satyres prove the truth of this assertion. Horace has even written a satire on this subject insinuating that the disease should be called the disease of Campania, as it was pretty common in this region. The first serious observation of a case was made by Lamfranc, he says in substance: "A man consulted me who presented in several places on his head seven excrescences, some longer than others, as large and as pointed as the horns of a deer (stag). There were no ulcerations of the skin. I considered a cure impossible." Among later authors two opinions prevailed as to the origin and nature of such growths. Malphigi and Morgagni from a study of the anatomical character of the growth hold that these horny growths are prolongations of the dermal papillæ. These dermal papillæ are surrounded by epidermal tissue which masses up like a wall and completely encircles the former structure. During the period of growth of the individual these dermal papillæ and epidermal tissue wedge into each other, intermingling thoroughly, finally taking the form of a hard body. Cruveilhier also inclined to this opinion. On the other side, John Hunter and Horne were the first to recognize that these growths can follow encysted tumors of the skin, and Meckel says that they originate in this manner, even when they have been preceded by a wound of the skin. Virchow ended the discussion and settled the question by stating that if, even from the observations made by Bartholin to those of Wilson and Burns we must admit the possibility of horny growths originating from encysted tumors, it is nevertheless certain that in the majority of cases these growths are simply cutaneous productions. Krause was the first to examine the histological structure of these horny growths and regarded them as epidermal productions in which the horny layers assume a perpendicular direction and in this manner give origin to tumor formations. Rokitsansky and Vogel held

the same opinion. The latter macerated these growths in a solution of caustic potash and he thus ascertained that they were broken up and separated into small scales. Wilson compared the horny growth to the finger nails. Simon thought he found canaliculi; filled with marrow. But Vichow demonstrated that this so-called marrow was nothing else but horny structure compressed together. Virchow also showed that the body of the cutaneous horn contained neither nerves nor blood vessels. If these structures are found in those sections cut from the base of the tumor this is due entirely to the penetration of the dermal papillae into a higher portion of the tumor. This is just what occurs in the derma. Lebert, Duhring, Kaposi, Brocq, etc., considers horny growths to be a vertical hyperplasia of the horny layers of the epidermis. These growths can originate from any surface of the skin but show a predilection for the cutaneous region of the head. This tumor is generally simple, but several may be observed on the same individual at the same time. Botge reports two cases, one a man of 60 with horny growths; four on the nose, two on the left cheek. The other case of a girl 17, who at the age of 2, had a very extensive eruption followed by the appearance of multiple productions resembling warts. The lower portion of the body, from the iliac crest, was studded here and there, with such growths. Along a line corresponding to Poupart's ligament these growths were especially numerous, the whole surface being completely studded by them—and they moreover had a symmetrical distribution. A growth measuring 15 centimetres was located near the umbilicus, and there was also another growth of similar dimensions near the right labia majora. Pick publishes a case 22 years of age with a horny growth on the penis which covered the whole circumference of the junction of the prepuce and glands penis.

[I saw a similar case, 1890, in a young man 20 years of age. The glans penis was amputated in order to get rid of the growth, and when the patient was last seen, five years later, the stump was perfectly healthy and showed no sign of recurrence.]

Horny growths of the auricle. This growth is seldom to be found on the auricle. Politzer does not record a

case in his practice, in fact he never saw a case. Buck, Burnett, McBride and Pomeroy each report cases.

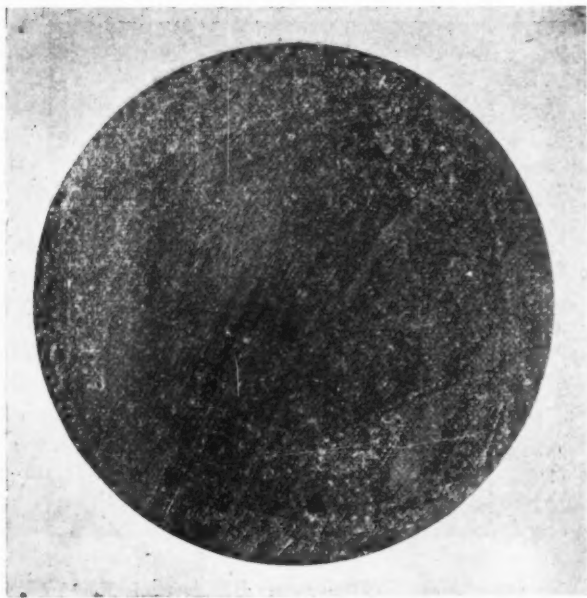
OBSERVATION No. 5. Julia W., full colored female, aged 23, native of Louisiana, servant, was admitted to the clinic February 14, 1897, with a keloid of the right lobule. Family history was good and she presented the appearance of an exceptionally healthy woman. She is the



Keloid Lobule, Right Ear, C. E., Age 23.

mother of one child four years old. No history of keloid among five sisters and four brothers, but her mother had small keloids on both lobules, which never grew larger than a cherry, disappearing about the climacteric period. First noticed the growths seven years ago, shortly after piercing the lobules and wearing ear rings. They grew slowly until they were the size of a bird's egg. One year ago

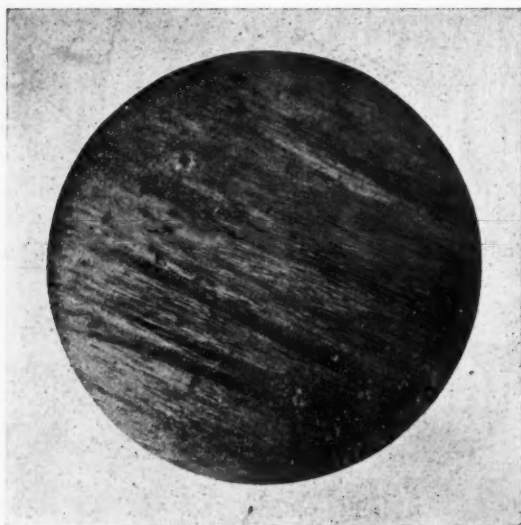
she was operated upon by Dr. Carter of Nacchitochs Parish. There was not the slightest sign of recurrence on the left ear while it reappeared before the right ear had completely united and continued to grow until it was as large as a hen's egg. It was large, spheroidal, occupying the entire position of the lobule, looking like a large overgrown lobule. It presented a hard surface, smooth, nodulated and as deeply pigmented as the surrounding



Section of Keloid. Lower Power ($\frac{2}{3}$) Showing General View of Tissue.

healthy skin. By order of Dr. deRoaldes she was hospitalized, preparatory to being operated upon. She objected to being operated upon with cocain anæsthesia, having already been operated upon for removal of keloids under chloroform and was afraid to have any cutting done "unless she was asleep." Anaesthetic was administered, the following day, without any unpleasant developments. The operator, Dr. Augustus McShane, first assistant surgeon, marked a

line of incision on her black skin with a scapel, about $\frac{1}{2}$ of an inch from the edge of the keloid, and even a little further where the growth seemed to be sending slender processes of new tissue as an invading vanguard. On account of the size of the mass and the loss of healthy tissue from the previous operation, it was necessary to sacrifice as little of the latter as possible. At best it was evident that even the most conservative operation would



Section of Keloid. High Power ($\frac{1}{5}$) Showing Fibrous Tissues.

inevitably leave a considerable surface uncovered by epidermis when the edges of the wound would be brought together after the removal of the growth. The operation, though a simple one, was somewhat prolonged on account of the desire to save as much healthy tissue as possible, and also on account of the remarkable hemorrhage from the numerous hypertrophied vessels supplying the growth. The lobule had been completely excised at the previous operation. The tumor was removed entirely, leaving at first a very large surface for healing by granulation; but

when the edges were brought together, slight force being used, the exposed surface was reduced to a minimum, leaving a "strip-like" raw surface not more than $\frac{1}{4}$ inch in length and half that width. The cartilage of the ear was cut through and exposed, but was covered when the wound was sutured. Before closing the wound, all bleeding points were cauterized with the theremo-cautery. The approximated edges healed by first intention and the granulating surface within three weeks. Patient was seen a few days ago. the ear, save the loss of the tissue, presented a perfectly healthy appearance; nothing but a smooth, elastic cicatrix marking the place of the former keloid. The growth removed weighed 18 grammes.

Microscopically, a section of the keloid presented a horny layer of epidermis, resting upon the cutis vera. In the neoplasm proper, a large quantity of roundish and spindle shaped and stellate cells were found, which anastomosed with one another and were separated by an abundant homogeneous or finally striated intercellular substance. Nuclear elements were scattered through the fibrous tissue, which were apparently inflammatory for they did not alter the tissue in any way, merely lying in the spaces. The hyaline bands of fibrous tissue took the stain well, but had no definite structure.

OBSERVATION No. 6. L. H., colored female, servant, age 21. Keloid appeared on left ear at fifteen years of age, about ten months after piercing lobules for ear rings. Tumors grew rapidly to the size of a guinea egg; was operated upon five years ago at Charity Hospital by Dr. Cochram. Growth reappeared three years later and is now about the size of the original keloid. Has previously worn brass ear rings. No history of keloids among other members of family. Patient complains of occasional slight pain in region of tumor.*

OBSERVATION No. 7. L. C., colored female, servant, age 20, has keloid of both lobules about the size of an English walnut, on right ear, and half that size on left ear. Lobules pierced at nine years of age and brass ear rings worn.*

Tumor first observed on right ear, about five years ago, and the left ear several months later. Two years ago applied a horse hair constrictor which resulted in no good

but acted as an irritant and brought about a renewed growth of the tumors. No history of keloids among other members of the family—mother, two brothers and three sisters living and enjoying perfect health.

OBSERVATION No. 8. W. W., colored male, laborer, age 14, healthy, weight 105 pounds. Has large pendulous keloid on right lobule, resembling a tomato with a noded surface. Ear was pierced at six years of age on advice of some superstitious friend to cure sore eyes. Growth appeared two years ago and has been growing quite rapidly of late. Both parents, two brothers and three sisters living. No history of keloids for three generations. We find a slight trace of Indian blood in this patient and he is the only exception to the full blooded negroes I have seen among the colored race. He is fully $\frac{3}{4}$ colored.*

I have made a careful research of the records of the hospital and find among the first 43,000 patients visiting the clinic 29,524 white and 13,476 colored. Of these 21,637 males and 21,363 females; 7925 were under 10 years of age and 35,075 over 15. Among these we find 35 keloids, 3 of whom are white and 32 colored. Two of the whites are males, one under 10 and the other between 10 and 20. The only female, white, was 17. Six of the colored were males, one between 10 and 20, four between 21 and 30 and one more than 40 years of age. Of the 26 colored females, three are under 10, twelve between 11 and 20, eight from 21 to 30, three from 41 to 50 years of age. From this you can judge the relative frequency of keloids among the white and colored races. A few of these were mulattoes, but a large majority were full black. All these coming under my observation gave the history of the "usual ear ring," and I feel safe in saying without fear of successful contradiction, that, with four exceptions, including the two white males and two of the colored males, and these may have been from some irritation though no history of piercing, ear ring or injury, the traumatism existed in the 35 cases. Admitting the four cases to be spontaneous, we have a relative ratio of less than 9 per cent. springing spontaneously against 91 per cent. from traumatism.

*Observations 6, 7 and 8 were made after the meeting of the Louisiana State Medical Association. They were patients at the Eye, Ear, Nose and Throat Hospital during June and July and I should have stated that they were enjoying perfect health. I operated each of them with the usual V shaped incision, removing a portion of the cartilage. All made satisfactory recoveries and as yet no sign of return of the growths. (Aug. 1, 1898.)

In a communication read before the International Congress of Otolaryngology at Florence, 1895, Dr. deRoaldes said: "Most observers who, like Turnbull, Tiffany, Gregory, Knapp, Briggs, Yandall and many others have mentioned the frequency of keloids in the negro race—have also reported so many recurrences after extirpation, that most surgeons refrain from removing keloids, more especially at the age of physical development and growth. There is a connection to be established between the post-operative reproduction of these tumors in the negro and those so familiar, viz.: naso-pharyngeal polypi. I have operated again and again on keloids with the knife, followed by the use of the thermo-cautery, the latter having sometimes a modifying influence of some sort over the growth. Within the last few years I can but praise the use of electrolysis as an adjunct in the bloody extirpation of keloids.

My hospital records show three cases of keloid not originating from traumatism or piercing of the ears. Are these spontaneous tumors or must we suspect traumatic irritation so slight as to pass unnoticed?"

Knapp relates several cases originating in places in which the ears were pierced and says that "tumors are so seldom met with after the ears have been pierced, that some authors, for instance, Lawrence Turnbull, are not inclined to take them as a consequence of the injury alone, but let a peculiar condition of the system, especially scrofulous or galvanic action of the alloyed metals of the ear ring, play a part in their production."

Bullard, Burnett, Dench, Field, Hovell, McBride, Pomeroy, St. John Roosa, Sutton, Taylor and others relate cases among the colored race and without a single exception attribute the cause to piercing and wearing ear rings, at the same time claiming that they are frequently met with among the colored races and seldom among the Caucasians.

Agnew, Barr, Gruber, Pritchard, Shields, Wilde and others report keloids and while accepting the traumatic theory make no distinction between the relative frequency among the different colors. Trumbull and Bliss in foot note of Annual of Universal Science, Sajous, 1896, says, "Tumors of the lobe are as infrequent in the negro as in the white race, but frequently in the mixed races, especially the mulatto."

Some author states that fibroma of the lobule occurs more frequently in colored than white and think the reason of it is that the poor negroes have to use ear rings of commoner and heavier material than their more fortunate rivals.

Dr. Senn, of Chicago, in his excellent work on "Pathology and Surgical Treatment of Tumors, page 382, says:

"Keloid resemble clinically some of the granulomata, and under the microscope it is a compromise between a fibroma and a sarcoma. Its frequent occurrence in tubercular scars resulting from small punctured wounds has led the writer to suspect that it might represent a particular form of tubercular inflammation. We are, however, not in a position to prove its tubercular origin, and nature, and its clinical behavior would certainly tend to negative the idea that it is a form of sarcoma. For the present we must include it among the fibromata, although strongly inclined to believe that before long it will have to be classified with the infective swellings. The colored race is particularly predisposed to keloid. The sting of an insect, the prick of a needle, or a small abrasion frequently acts as the exciting cause. Keloid sometimes affects different parts of the body at the same time, but always develops in a scar, which may be so small as to elude detection. The tumor slowly increases in size up to a certain point, and after having remained stationary for from 10 to 20 years they slowly disappear—one of the strongest proofs that it is not a true tumor. The keloid tissue is characterized by its great vascularity as compared with other fibromatous tumors and by the existence of numerous connective tissue space lined with endothelial cells. The inflammatory parts of a keloid is shown by the numerous leucocytes in the vascular spaces. From the structure of a keloid it would be reasonable to assume that occasionally it is transformed into a sarcoma. The benign clinical aspect of a keloid render it easy to distinguish between it and a malignant tumor of the scar-tissue."

All authors agree that unless thoroughly removed the tumor is sure to return. If the growth is in the lobule a V shaped incision may be made with a sharp scalpel and the wounds closed with sutures. It frequently becomes necessary to take a portion of the cartilage in order to completely remove the keloid. Newton in N. Y. Weekly Journal, March 20, 1897, folio 380, reports two cases of keloid successfully treated with thiosinamin. This remedy, though new, judging from what he says, is worthy of favorable consideration.

To Dr. O. L. Pothier I am under obligations for the microscopical examinations and the photo-micrographs illustrating this paper.

I am grateful to Dr. deRoaldes for the use of transactions and reprints and a list of authors on these subjects, to Dr. C. J. Lanfried for access to his file of Medical Journals, also to Dr. McShane for the use of a book and valuable suggestions.

OTITIC CEREBELLAR ABSCESS.

DR. PAUL KOCH.

(Continued from Aug. No., 1898.)

Translated and abridged by Drs. H. A. Alderton and J. Ketterle,
Brooklyn, N. Y.

If, after or following general brain symptoms, only severe optic neuritis and early and deep coma are characteristic of meningitis serosa as opposed to cerebral abscess, nevertheless the diseases become more widely separated by the focal symptoms. It is true that mild rigidity (which in meningitis serosa exceptionally reaches to severe rigidity), mostly in association with opisthotonus, pupillary difference and strabismus are characteristic of both diseases; disturbance in walking, which is such an important symptom in cerebellar abscess, is much more pronounced than in meningitis serosa. The patients, in half of the cases, walk unsteadily, show tendency to fall to one side or the other, or forward or backward, and at times cannot stand or sit without support. On the other hand, meningitis serosa is characterized more frequently by severe disturbances in sight, which, as we have mentioned, is not the case in cerebellar abscess. Out of 22 cases, 5 had amaurosis and severe amblyopia, mostly due to continued pressure on the optic nerves, although this was sometimes only a temporary condition.

We look upon the following as symptoms peculiar to meningitis serosa, even though they are not of frequent occurrence, namely, deafness, loss of taste and smell. With meningitis there are often bilateral pareses and paralyses, which rarely occur as pure cerebellar symptoms. Both arms may be involved, both legs, both abducens and both facial nerves, involving all from the very beginning, or gradually one after another. It is true that at times these disturbances may be unilateral, in which case a crossed paralysis will point toward a meningitis, and against an

abscess. Motor-speech disturbances considerably preponderate in meningitis, but this disturbance is similar to that described in connection with cerebellar abscess. It is possible that this symptom, when present in abscess, is due to accompanying meningitis, even where abscess symptoms predominate. Mild degrees of hydrocephalus internus may have been overlooked or neglected in autopsy records. Disturbances in swallowing, seldom observed, belong to symptoms of meningitis. An important and characteristic symptom, it seems to me, are the attacks of convulsions or cramps that are observed in one-third of the cases of meningitis serosa. These are either general or partial convulsions, or tetanic with opisthotonus and trismus, while some patients lose consciousness. We have seen such convulsions, etc., often with cerebellar abscess, but all those cases, with accurately made post-mortems, show more or less severe hydrocephalus internus.

There are, therefore, some not unimportant differences between the symptoms of these two diseases, which in many cases will carry us to a correct diagnosis. The main difference, however, is in the course and termination. The abscess, once it has entered the terminal stage, usually steadily progresses toward the end, while meningitis serosa takes a variable up and down course, at times better, at times worse; the first lasts one to three weeks, the latter may last weeks, months or years. The patient with meningitis serosa suddenly becomes ill with severe brain symptoms of various kinds, yet after a few days or hours these symptoms disappear, leaving behind this or that symptom. After a time there appears a second attack, which is not necessarily similar to the first. Thus it goes on and on. The single symptoms vary as often as the different attacks. Meningitis is accessible by energetic therapeutic measures. By means of depletion of all kinds, by inunctions and by lumbar puncture we can sometimes modify or even cure the trouble. The lumbar puncture of Quinke is a valuable method to inform us if there is an excess of arachnoidal fluid, its quantity and properties.

It is usually possible for us to say with certainty: "This ear patient has a meningitis serosa." However, this does

not help us much. Against six cases of meningitis serosa ex otitide, there are at least six cases of meningitis serosa with cerebellar abscess, in which the symptoms of abscess were overwhelmed by the symptoms of meningitis. And as not less than 20 cerebellar abscesses were accompanied by some degree of meningitis, it shows that meningitis serosa more often develops a cerebellar abscess than from an otitis media. We can only say, therefore, in single cases: "This case of otitis media has symptoms of a meningitis serosa, probably there, also, exists a cerebellar abscess."

Tubercular meningitis, in its early stages when consciousness is clear or almost so, may cause us great diagnostic difficulties. The general brain symptoms are the same as those of abscess; namely, convulsions, rigidity of neck and difference of pupils, and it has been shown that some optic neuritis may be present at the end of the first week or earlier, while the characteristic choroid tubercles are often absent. The diagnosis become certain only in the second week when the following symptoms appear, namely: somnolence becomes deeper and deeper and goes into sopor, there appear irregular pareses, spasms and contractions, and the pulse becomes very frequent. The diagnostic difficulties in children are not to be overcome. Tuberculous meningitis is comparatively frequent in the first ten years of life, tubercular caries of middle ear and its surroundings leads generally not to abscess, but to tuberculous meningitis, and we can state that one-half of all the cases of cerebellar abscess before the tenth year, are accompanied by meningitis serosa, whose symptoms in general are not to be differentiated from the tuberculous with certainty. Thus it is that in such children only two cases have been trephined and no opening of an abscess accomplished. If we read the histories of our 11 cases we see that the prodromal symptoms, which are typical of meningitis tuberculosa in children, have been observed in a single case, in all other cases the disease appeared suddenly and without prodromes. Temperature was that of fever only in two cases; in all other cases it was normal or subnormal, even in observation lasting several weeks. Finally several children were almost or entirely conscious unto death, if we exclude those temporary

periods of unconsciousness during the convulsions. And as death generally appeared toward the beginning of the third week, we must take note of the value of the foregoing remark. On the other hand, ptosis and strabismus are frequent and early symptoms of tuberculous meningitis (end of first and beginning of second week) while in cerebellar abscess with and without meningitis serosa, it has seldom been noted. Finally we may find all the symptoms of tuberculous meningitis in cerebellar abscess, especially where accompanied by meningitis serosa. Therefore I think as follows: If a child in the first ten years of life, and following a protracted otitis media acute or chronic otorrhea becomes suddenly ill with earache, headache, vomiting and general convulsions (to which other general brain symptoms may be added) and if the consciousness remains clear during intervals between convulsions, and if temperature is normal or subnormal, such other symptoms as rigidity of neck, pupillary difference, fixation of eyes, disturbance in equilibrium and twitching of muscles, also same-sided pareses will point to cerebellar abscess, while incontinence and some hyperesthesia may also be persistent and will not alter the diagnosis. If we have attempted to cure the indigestion by appropriate treatment, if we have relieved retention by paracentesis, if we have removed polypi and chiselled the mastoid, if all these things have been done and no improvement has taken place in the general brain symptoms, are we justified by the middle of the second week, in puncturing the cerebellum. As choroid tubercule points to tuberculosis, so does pronounced optic neuritis at the end of first week point to cerebellar abscess or meningitis serosa. It must be remembered that in 2 cases out of 11, a careful chiseling would have led us directly into an abscess, though a defect in the posterior wall of the pyramid and through a dural fistula.

We may now give a short consideration to meningeal hyperemia, which produces especially alarming symptoms in children and exceptionally ends in death. We do not know much about this affection. General brain symptoms, convulsions, difference in pupils and strabismus may present themselves in a beginning otitis media acuta in an alarming degree. The presence of a brain abscess

is not probable because we have seen that abscess following otitis has not caused symptoms before end of second week, while paracentesis and antiphlogistic measures generally soon clear up existing conditions. Retention in an acute or chronic otitis media may even produce such symptoms until the cause of retention has been removed. There are individual cases in which there cannot be retention, and yet the general brain symptoms persist for some weeks. These cases can have a great resemblance to our Group II, and if at the same time the papilla on same side is blurred, and if the corresponding pupil is dilated and slow to act, we should think of abscess, and if to this rigidity of neck or paresis of the corresponding facial nerve in its branches appears, or if the abducens is paralyzed, we would think more that it is cerebellar abscess, and we would end by first puncturing the hemispheres of the cerebellar and then of the temporal lobes. These cases are of course rare.

In large children and in adults, we are not so often compelled to make a differential diagnosis, because tuberculous meningitis is here a much rarer affection. The symptoms are not different from those in younger children, but prodromes and convulsions are comparatively more rare. Temperature and pulse may act as they do in abscess, so that finally on a quick progressive unconsciousness and delirium, pronounced neck rigidity and crossed disturbances in mobility and sensibility will aid us in making differentiation. Regarding the differential diagnosis, we next come to ask if it is abscess or meningitis; and if, in ear patients, we should further decide whether the meningitis is serous, purulent or tubercular, we must take into consideration the condition of the other organs. If in other regions we find tuberculosis, the ear trouble is considered tubercular; if other organs are not tubercular, we must then think of a serous or purulent meningitis. This shows us how easy it is to make an occasional diagnostic mistake.

CASE—Man, age 42, well built, laborer, seemingly well up to this time, was seen in Charity Hospital, 27-IX-92, and we suspected a purulent meningitis. Besides pronounced meningitic symptoms, which first appeared suddenly on the evening of 23-IX after he had worked all day, there was his usual right sided otorrhea. Inner

organs were apparently normal, except that in left lower lobe of lung there were some doubtful abnormal sounds. On 4-X (11 days from beginning) he died. Autopsy showed, much to our surprise, a well developed meningitis tuberculosa. Superior lobes of both lungs had cheesy deposits and slaty indurations, while spleen and kidneys showed submiliary tubercles. During life the lung seemed normal and likewise in other organs there was no suspicion of tuberculosis; the meningitic symptoms appeared so suddenly and the course was so severe and so rapid, that none of us ever thought of a tubercular meningitis.

In doubtful cases we can use to advantage the following, namely: lumbar puncture, or a puncture of arachnoidal sac after careful chiseling with the object in view that some result might follow. Doubtless a tubercular caries of middle ear and its surroundings often leads to tubercular meningitis even in grown persons; nevertheless we very seldom have direct evidence that the meningitis originates from a diseased ear, and not from a tubercular process co-existing in some other parts of the body. For this reason, I cite shortly the following case, which I observed in January, 1892, in Chairity Hospital, under jurisdiction of the deceased Geheimrath Fraentzel.

In the winter of 1891-2 a postman, age about 32, had pronounced pulmonary phthisis with a temperature and tuberculous caries of the left ear. By frequent and careful douching of the ear, we were enabled to clear out the thin pus. One evening I found the patient very restless, although perfectly conscious; next day he had severe headaches, progressive dulling of sensorium, and on 3d day we were sure of a meningitis tuberculosa. Autopsy showed a well developed tuberculous caries of middle ear. In the tegmen tympani there was a narrow crevice which was filled with a pale red connective tissue membrane containing tubercular nodules. This tissue reached to the dura, and over it, which was thickened and reddened, seemed to be curled up, and likewise contained tubercular nodules. The inner surface of dura was here swollen and dulled. The lower and the outer surface of left temporal lobe as well as the fissure of Sylvius were filled up with countless submiliary and miliary tubercles, with moderate sero-fibrinous infiltration of the arachnoid. The nodules became less numerous as we went upward or forward or backward or toward median line, and on the right side there were very few nodules.

At times it is a question whether the symptoms before us are due to tumor or abscess, because cerebellar tumors are not so very rare. According to Gowers, the great characteristic sign of brain tumor is the gradual beginning

and the slow progressive course of the same. On the other hand, it is noteworthy how suddenly we have the beginning of the terminal stage of an abscess, the rapid progression of symptoms, and rapid outcome; the former (tumor) requiring months and years, the latter (abscess) only weeks. The otic abscess, with its disturbances, points to one seat or situation, near the diseased ear; tumor, which occasionally accompanies an otitis media, is independent of the ear and can therefore cause local symptoms that would be impossible for an otic abscess. The appearance of abscess symptoms is, as a rule, generally accompanied with distinct disturbances in the course of the causative otitis media, while such an event with a tumor, would simply be coincident. Cerebellar tumors, as a rule, lead to optic neuritis and often of such a severe degree as never occurs with abscess. Thus we can generally reach a differential diagnosis. The tubercle nodules cause more difficulty, especially if the individual is young. Tubercular nodules are classed with the frequent forms of brain tumors; further three-fourths of all tubercular nodules belong to first 20 years of life; one-half to the first ten years of life; the most frequent seat of this tumor is in cerebellum, hemisphere or vermiform; it occurs in children, usually with a bone tuberculosis, especially of the petrous bone, and finally leads not unfrequently to hydrocephalus internus, if situated in the cerebellum. This cheesy deposit represents a chronic growth, which, as a rule, causes a chronic complaint. The disturbances drag over several months with various changes in development of general and local symptoms. But there are cases that remain more or less latent, then suddenly produce symptoms and rapidly lead to death; and this (death) may be due to severe disturbances caused by presence of the tumor, or to a sudden appearance and rapid course of meningitis tuberculosa. In the first 10 years of life, we can clinically distinguish a tubercular nodule from a cerebellar abscess, but hardly can we diagnose a cerebellar abscess from a tubercular nodule; even at the post-mortem it is sometimes difficult to make the differentiation if we are dealing with a softened and purulent nodule. Altogether we can best decide upon cerebellar abscess, if the child has up to this time been healthy and strong; if other signs of tuberculosis are wanting; if parents, brothers and sister are healthy; and if the otorrhea followed scarlet fever or diphtheria, so as not to leave the impression of being tubercular. Occasionally a dural fistula will help us out in diagnosis. In

doubtful cases it is better to operate than to give up. If there are tubercular nodules in the cerebellum, the child is lost; why might we not have luck in emptying out a solitary nodule, as we do in abscess, if we find it?

Other obstacles threaten him who is looking for brain abscess. We have given an example above, where the coincident presence of several widely different affections with an otorrhea lead to a false picture. Oppenheim pointed recently (as did Raymond 15 years ago) to hysterical accompaniments in some cases of otorrhea. The knowledge of the dangers of an otorrhea has spread lately among the laity and the profession. The patients are acquainted with the undesirable brain symptoms, they are afraid, and constantly observe their own condition. Thus I have been treating an old lady for several months, who has circumscribed caries of the hammer, without much irritation; dry ear; she came to me very much disturbed, with earache and local headache, dizziness and nausea, and had vomited several times. Upon percussing the skull I came across a tender spot which became more tender upon each subsequent examination. No other symptoms. Nevertheless she was quite corpulent and full blooded, had some heart trouble and digestion was not quite in order. A careful obesity cure was undertaken, all symptoms disappeared, and she no longer believes that she will die of ear trouble. On the other hand we may seek for the cause of symptoms in every other place, while we may be dealing with cerebella abscess. I lost a woman with cerebellar abscess who had complained of constant vomiting, obstinate constipation and sleepy unconcerned existence, and after chiseling open, I decided that pregnancy had caused these symptoms; she was married, had children, and positively stated that she was 3 months pregnant. She had had similiar trouble in 3d month of last pregnancy. These facts lead us to make an exploration at autopsy and we found no pregnancy.

Finally I must treat of the differential diagnosis between this and temporal abscess. I will give a short resumé: cerebellar abscess is accompanied by disturbance in equilibrium, in gait, in breathing, and in motor speech, with rigidity of neck, trismus, same-sided paresis of facial extremities, also amaurosis without atrophy of the optic nerve, and often, especially in children, convulsions. Temporal abscess has crossed paresis, paralysis, spasms and convulsions, hemi-anesthesia, amnesic and commissural aphasia, hemiopia, same-sided ptosis. With the latter (temporal abscess) all symptoms point to a disturbance or affection of the internal capsule and at the base there may be involved only the centre for the oculo-motorius or rarely in the centre for the abducens; sometimes the in-

fluence of the brain abscess does not reach to this region of the brain, and so the nerve may lead through the abscess to the base of brain uninjured. The first appears with symptoms of localized slight basilar meningitis and we then have to decide if that which we have to deal with, is already purulent meningitis or not; or it appears with symptoms of meningitis serosa ventricularis, and then there is the question, is that which we are dealing with a simple meningitis serosa, or is it also accompanied by cerebellar abscess. Cerebellar abscess in two-thirds of all cases produces very slight and mild local symptoms or none at all, while temporal abscess produces more or less local symptoms of the stated sort. A last and important criterion is the manner in which the bone disease of pyramid spreads. The abscess tends to be situated where the caries has approached the dura; thus in temporal lobe, when caries is at tegmen tympani or tegmen antri, in cerebellum when caries is upon posterior wall of petrous bone. Purulent processes in labyrinth lead, if not to meningitis, to cerebellar abscess and therefore an accurate functional testing is of value, as well as a careful investigation of the horizontal semicircular canal and of the niche of the fenestra ovalis.

Prognosis.

Otic cerebellar abscess, left to itself, leads sooner or later to death. Even in the isolated reported cases of spontaneous cure (Zutphen), the patient would have succumbed to a second abscess, if a fatal hemorrhage had not hastened death.

The prognosis of cerebellar abscess is worse than that of temporal abscess because its diagnosis is more difficult and uncertain. The rapidly following fatal rupture into the lateral ventricle in the latter (temporal abscess) may be compared to the unexpected, quickly appearing and rapidly fatal paralyzing of the respiratory centre in the former.

The prognosis of operation in either variety of abscess is the same of 76 cerebral abscess operated upon according to Körner, 55.3 per cent. recovered; of 19 cerebellar abscesses that were opened, 52.6 per cent recovered. The prognosis for the operation, which was only a few years ago thought unfavorable for cerebellar abscesses, has become more favorable. Out of 9 fatal cases, 2 were not fully operated upon, 2 were due to a complication (hemorrhage and pyemia), 1 due to meningitis that followed the ear trouble. In 4 cases the abscesses were well cleaned out, death followed and autopsy did not reveal any other change in brain. Two of the cases were operated upon

during coma from which they never fully became conscious, the 3d had an acute paralysis of the respiratory centre with a good pulse, but emptying the abscess had no effect toward recovery. Particularly noteworthy is the case of Milligan and Hare. The patient was apparently not very sick and was operated upon, and following the operation he felt well and a speedy recovery was expected. Suddenly the respiration became irregular, the temperature rose rapidly and in 3 hours he died. This was 22 hours after complete emptying out of an uncomplicated abscess.

In one particular, therefore, the prognosis in cerebellar abscess is worse than in temporal abscess, because at any moment there may arise a paralysis of the medulla oblongata. On the other hand it is better, because in cerebellar abscess we never observe the defective emptying of the abscess, or the accompanying progressive encephalitis and encephalo-meningitis, which so often proves fatal after operations on the temporal region. This is because cerebellar abscess rarely is accompanied by those putrid brain areas, which we see in temporal abscess.

Therapeutics.

Surgeons and ear specialists in Germany have agreed that the operation for otic cerebellar abscess must begin with operating on the diseased ear. Whether we begin on the mastoid, or, as suggested by von Bergmann on the squama immediately over the outer auditory canal, the same results are reached. From my own results I prefer the first method.

We do not always have a very clear case before us, not rarely the symptoms are due to extradural abscess or local gangrene of dura, and the patient is therefore in better condition if he has no opening in the skull covering after operation, even if it is covered by muscles and skin. If we conclude to thus operate in sinus phlebitis and cerebellar abscess, I fear that the skull defects will be necessarily large.

In England, despite the researches of Macewen, the views are at not all the same. Percy Dean reported a method in 1892 which I think has done much harm. Dean trephined the mastoid in a case of chronic otorrhea, and on account of caries, he exposed the sinus. Nevertheless, the brain symptoms did not disappear, and as he then thought of the possibility of abscess, without having reason to think whether it was temporal or cerebellar, he then, after 14 days, put the trephine over the lateral sinus, placing the point of trephine 1 inch behind and $\frac{1}{4}$ inch over middle of meatus auditorius externus (in a fourteen year old child). The gap was widened over the sinus

with a bone forceps toward the front and upward, and temporal lobe was punctured. Nothing being found, he enlarged the opening in the bone backward and below, and succeeded in emptying a cerebellar abscess. The advantages put forth for this method, are that it is convenient and quick and that in one sitting we can puncture both regions of the brain; this would be a very convenient method if we are to consider the difficulty of diagnosis between temporal and cerebellar abscess, especially in a right-sided otorrhea. I have nothing to say against this method, providing we have absolutely no means of locating the abscess beforehand; however, I may say that if the case turns out to be a temporal abscess, the bone opening lies too far to the rear. One has said: In the foregoing case the middle ear did not seem much diseased, one might ignore it altogether and trephine at once. Can we conclude that the pyramid is not diseased, in view of the pathologic findings upon the pyramid in intracranial complications even where the mastoid is intact.

Especially in cerebellar abscess we are not able to make a positive diagnosis, and we can not omit that efficient aid, namely, a careful inspection of the posterior wall of the pars petrosa after trephining the mastoid. We have seen that a careful chiseling of the mastoid may lead directly to the abscess, the presence of which we suspect in cerebellum, without having the right to make a diagnosis. We have another class of cases, in which general brain symptoms and some local symptoms point to a purulent process in the posterior fossa, but we cannot state positively whether it is cerebellar abscess, pachymeningitis, or sinus thrombosis that causes the symptoms. These are cases in which a certain procedure leads to or aids diagnosis; namely, to chisel the mastoid and then after clearing out debris from dura and sinus to make a careful observation. Therefore it is important to remember, where we suspect cerebellar abscess, that we should open the mastoid, and then with plenty of light we are to carefully expose and observe the region of the sulcus sigmoideus, the posterior and median wall of the antrum mastoideum throughout the whole extent.

After exposing the posterior fossa beginning at the mastoid, it is advisable to undertake a puncture. This has advantages over puncture behind the sinus and after trephining over the same. We produce no new wound, especially no defect in outer skull vault, and we have more chances to reach a small median abscess than in the second method. It is also more valuable in large abscesses, because we can approach it from any side. In order to find a small median abscess, we must penetrate, from the trephined

opening behind the sinus, through 3 to 5 cm. of brain substance, and if we point the knife downward and toward the median line, we are liable to injure the facial or acoustic or the sinus, and we are working in a great depth to which we must add the thickness of bone and soft parts, and from an opening that is uncertain and inaccurate. How easily in this case we can err, how uncertain to work blindly in such a depth, seeking another opening.

I have my doubts that the pus will always make its appearance through a canal that is several cm. long and that passes through normal brain substance, even if the point of the puncturing knife has penetrated a walnut-sized abscess. If the puncture is without result and if nevertheless we have reason for believing the existence of an abscess, we can easily puncture the temporal lobe by working from the mastoid cavity, this being a good place for the procedure. In these doubtful cases the tegmen tympani and antri has usually been more or less removed on account of caries.

Several operators, who punctured the temporal lobe and occipital lobe after trephining, have concluded, to puncture the cerebellum through the tentorium, using the same bone opening. In a few cases of large or median abscesses they had luck with their method, in other cases, however, they could not find the abscess. I think that this method depends too much upon luck.

It seems impossible to make a reasonable and conscientious search for a trephining opening over the temporal lobe. Besides, we, in this method, penetrate into the arachnoid space three times, which is certainly not to be recommended.

Should we open the dura before puncturing? I think it better to do this only if there is a special indication. If we avoid opening the dura, then we avoid cerebral hernia and its dangers, which frequently has followed a resultless trepanation. A puncture through the intact dura is harmless, if we observe the necessary precautions. Even granulation formation is no contra-indiction, as we can scrape off the granulations and disinfect the dura before puncturing. In purulent and necrotic processes of the dura, we do best by exposing the whole extradural collection if possible, disinfecting, and treating antiseptically for a few days. If in these cases there is some urgent indication we may trephine at any point we think best, and puncture from there. If we do not want to do this it is preferable to have a broad split in the dura and to follow this with puncture. The puncture through the diseased dura is simply a septic vaccination; upon splitting the dura, the stream of the arachnoid fluid with wandering noxious substances flows outward; until a protective

adhesion is formed between the brain coverings, we tampon with iodoform gauze. If we have punctured with a knife, of course we must open the dura.

If we do not reach our object by puncture, we can then, after opening the dura, enter in a manner with which we had success. We endeavor to find fluctuation by palpating with a sound. I am inclined to believe that this will be more often successful because the abscess is apt to be situated in the anterior portion of the cerebellum, close under the upper surface. At that time I used a pliable aluminum sound with a thick knob. With such a sound, after giving it the right bend (namely a flat bending for the upper surface of cerebellum and a bending of the tip for the palpation) we can very well determine the consistency of the brain, we can easily reach far toward middle line, without having to fear that we will injure anything.

I will here say a few words regarding puncture of the arachnoidal space for purposes of diagnosis; this procedure after opening of the mastoid seems never to have been attempted to my knowledge. In two cases of meningitis, I pushed the needle of a Pravaz syringe through the exposed dura, into the brain substance, there was drawn into the syringe some fluid, mixed with blood; enough for a microscopic and bacteriologic examination. If the syringe aspirates nothing, there are two possibilities: either we have punctured at a point where the dura and brain have grown together, or the patient is normal in this respect and the arachnoidal fluid is scanty and consequently difficult to aspirate. When the latter is the case, I cannot say, as I have not observed it. Suppose it is impossible, nevertheless we ought to be able, with due care, to bring a puncture needle between the dura and brain. If we can then freely move the needle, without being able to aspirate any pathologic fluid, we can take it for granted that the arachnoidal space is not much changed. If there is an adhesion or obstruction, then probably an abscess exists in the vicinity. These diagnostic speculations may of course be enlarged upon, but we had better wait for a little further practical experience. I believe that this puncture is more valuable than the lumbar puncture.

To the puncture from the mastoid, we can add the opening of the abscess. This was done only in one case of Schwartze and Macewen and one of ours. They met with pus, which appeared at the inner side of the sinus through a dura fistula, and opened the fistula and abscess at the same time. Authors agree upon this method although Macewen is the only one to offer us a reason or example. From this point he reached the abscess, the contents were turned out, and it was properly washed out and drained.

He fears to leave behind deleterious matter and sloughs, and opens the abscess so wide that the contents can easily flow out; he then washes the cavity with solution of boric acid or 1 per cent. carbolic acid solution until the fluid comes out clear. The water enters through a small canula with small pressure, while its outflow is procured by another canula.

Against this I would recommend opening from mastoid. We can operate better at the outer skull bones than in a cavity, where it is difficult to handle the instruments, and which must sometimes be artificially illuminated. But we must take into consideration the fact that there remains a defect in the outer skull bones, which as a rule forces the patient to take special care of himself at all times. It is also doubtful if we can reach every small median abscess from a point behind the abscess sinus, as we have described in connection with a puncture for diagnostic purposes. There are nine small lateral abscesses to two small median abscesses which have been found after trephining, according to statistics; the abscesses were found $1\frac{1}{4}$ to $1\frac{1}{2}$ inches deep. After we have determined the situation of an abscess, by puncture from mastoid, then we will probably be able to trephine and easily open a median abscess; drainage through a canula through healthy brain substance is not difficult, even if the abscess lies deeper than the level of the trephine opening.

Regarding opening at the mastoid, the next question is "can we expose enough of the surface of the brain? It is difficult to make an opening of the size of a 50 pfennig piece upon the posterior surface of the pyramid, and we must also be careful in widening toward the median line that we do not come in contact with the lower semicircular canal. Therefore take note of its situation. The inferior semicircular canal enters near the posterior wall of the pyramid, perpendicularly. At first it is near the surface right under the superior petrosal sulcus, then passes deeper into the pyramid, going farther and farther from the posterior wall. The highest part of the posterior bend of the lower semicircular canal is nearest to the anterior edge of the sulcus sigmoideus, but the distance in a temporal bone in my possession is 0.5 cm. Put a tangent to the horizontal semicircular canal, that will cut perpendicularly the posterior pyramidal wall, and it will pass close to the highest part of the inferior canal. Therefore it is possible to pass by the semicircular canal and to go from antrum obliquely forward and toward median line, and secure a route to the posterior cerebral fossa. The spongiosa which covers the ivory-like semicircular canals, is a good guide for chisel and forceps. The surface of

the exposed dura is mostly taken up by the sinus, nevertheless after removing the anterior wall of the canal, we can see and cut a large piece of dura. If the sinus be thrombosed, as it often is, we can lengthen our incision to include the sinus if we think it advisable. In a cerebellar abscess we do not need such a large surface of brain as in temporal abscess, since the former has not such large necrotic shreds of brain tissue, which require such a large opening of the abscess walls in temporal abscess. We can wash out from the mastoid. In our cases we use iodoform in alcohol and ether, but we could have used other antiseptics. There may be cases in which the relations, or conditions, at the posterior pyramidal are so small as to make a washing of the abscess more or less unsatisfactory. I think that we can omit the washing. We need not help the pus out, as it will come out of its own accord. It is surprising how quickly the drain becomes dry. We would remove the drain on the seventh day, but we might have done it on the second dressing because there was then no further secretion to be let out. Winter and Deanesly found no secretion after third day, nevertheless they drained for three weeks. We can take it for granted that the intracranial pressure is sufficient to cause the abscess walls to approach each other and to heal.

In this relation, Macewen almost entirely does away with drainage. In acute abscess, the place of the abscess is filled up in a few hours, and drainage is used only when we are not sure that we could wash out all of the sources of infection. In chronic abscesses, the space is only slowly filled up, and it is recommended to use a decalcified absorbable drain, which must just reach to the abscess. Non-absorbent drains are used only in chronic abscess with putrid contents, but they should not be left in more than 48 hours. Macewen fears that the drain may irritate the pulsating brain by rubbing against it; if we use a drain, take it out as soon as possible.

Macewen in three cases procured prompt healing without a drain, and in a fourth case (a large abscess) he used an absorbable drain and had good results.

We cannot positively prophesy the future of an opened abscess. Harrison found at an autopsy, 48 hours after operation that there still existed an abscess cavity which contained pus, and it had no sign of a membrane. In a second case, 7 days after operation, he found at autopsy, an abscess cavity (empty), the size of a walnut. He does not state whether or not there existed a membrane in this case. Milligan and Hare found at autopsy, 22 hours after death, an (empty) abscess cavity with walls in contact despite the fact that a distinct membrane existed.

On the other hand, none of the fortunate operators have noticed a damaging or harmful action of the drain upon surrounding brain tissue, despite the fact that in some cases the drain remained in for weeks. Finally we must not entirely put aside a good and thorough washing out of the abscess cavity. The cerebellum is especially a situation where abscesses often lie just below the surface, and the covering over them is so thin, in some places, as to break or tear upon slight pressure. This shows how abscess contents may spread under the tentorium or somewhere in the arachnoidal space, and lead to meningitis.

It is probably best in cerebellar abscess to introduce a drain after opening, and to allow it to remain until perfectly dry. This is usually a period of 2 or 3 days; say in 4 to 6 days we can remove it. The drain must have a certain stiffness, so that it may not yield when pressed between the border of the bone and the brain hernia, which quickly forms. Schwartze noticed this in one case. The point of a Nelaton catheter is to be recommended for drainage.

The opening through the mastoid has the following advantages: We can reach every cerebellar, perhaps we can reach less conveniently the lateral, but the median far more certainly and better; we also avoid a defect in the outer surface of the bony brain covering, which we must most carefully protect.

In our cases after the treatment of the ear offered no serious obstacles; the result we might call ideal. However, if we have to deal with cholesteatoma or a severe caries, so that it is impossible to remove all the diseased tissue, then the prolapse of the brain may involve prolonged and tiresome after-treatment. In such cases, which necessitate a permanent opening behind the ear, it is recommended to avoid prolapse and defect in the posterior pyramidal wall by making a skin flap from the region surrounding the ear.

Finis.

PERICHONDritis AND NECROSIS OF THE ARY-
TENOID CARTILAGE.*

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Perichondritis of the arytenoid cartilage is due, in the majority of cases, to a tuberculous process in the larynx, although it may also follow syphilitic inflammation, typhoid fever and malignant processes; occasionally diphtheria and traumatism result in perichondritis.

Of 32 cases of perichondritis of the laryngeal cartilages collated by F. Bosworth (1), from which tuberculous cases were excluded, 9 were due to syphilitic lesions, 11 followed enteric fever, 1 each from diphtheria and traumatism, 2 in which lordosis of the cervical vertebræ were probably responsible for the inflammatory process, and 9 were of the so-called "idiopathic" type. Of these cases, 23 involved the cricoid, 4 the arytenoid, 3 the thyroid, 1 the cricoid and thyroid, and in 2 cases all the cartilages of the larynx were involved.

The arytenoid cartilages are considered the most frequently affected by Schroetter (2), tuberculous lesions being probably excluded in forming this opinion. In collating 55 cases of perichondritis following typhoid fever, Luening (3) found the cricoid cartilage involved in 22, the cricoid and arytenoid in 14, the arytenoid in 9, the thyroid and cricoid in 5, the thyroid, cricoid and arytenoid in 3, and the thyroid in 2 cases. Florman (4) reports 3 cases in which the excessive use of the voice was the etiologic factor.

In the majority of cases, however, perichondritis of the

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arytenoid is due to a tuberculous process, the ulcers usually developing on the posterior part of the larynx. When the mucous membrane over the arytenoid cartilage takes part in the pathologic process, the perichondrium may be destroyed and the cartilage exposed. Necrosis, therefore, is a natural consequence. It is not always easy to make the diagnosis by the laryngoscope or the sound, but arytenoid perichondritis may be suspected in tuberculous laryngitis when there is a chronic inflammatory edema of the tissues surrounding the arytenoid cartilages and those of Santorini and Wisberg.

A point of strong diagnostic importance is the immobility of the arytenoid cartilage taken in connection with the pathological signs already described. Paralysis is easily excluded, and a careful examination and history of the case will exclude extensive mucous exudation, etc. When the inflammatory process around the arytenoid cartilage is sufficiently prominent, there is difficulty of deglutition and often dyspnoea, the former being more marked, as the inflammatory swelling of the mucous membrane is usually more prominent on the posterior side of the arytenoid and less so on the anterior. The *sinus pyriformis* of the affected side is diminished in area, this being sometimes quite marked.

In the more severe acute cases of perichondritis of the arytenoid cartilage, an abscess is formed, the discharge usually taking place in the neighborhood of the *processus vocalis*, although not infrequently at the extremity of the arytenoid cartilage or through the pyriform sinus. In chronic cases this result may be retarded, or even absent this being especially the case in syphilitic conditions where the pathologic process sometimes improves rapidly under operative treatment. Several cases of perichondritis of the arytenoid are well illustrated by John Schnitzler (5).

When ankylosis develops, there is hoarseness, which may extend to the point of aphonia. There is usually considerable irritation in the throat, not only from the pus formation and swelling, but also from the effects of the inflammatory swelling on the opposite side of the arytenoid. In a case in my practice, the exposed part of the

necrosed cartilage caused an ulceration of the opposite arytenoid from friction and irritation.

Where there is necrosis, several months are required for the exfoliation, which is usually effected through the natural passages. In the majority of cases of perichondritis of the arytenoid cartilage, a permanent ankylosis of the crico-arytenoid articulation results, causing considerable vocal impairment. Necrosis follows in the large majority of cases. When one arytenoid cartilage has been eliminated, the soft tissues which it supports collapse and the median line is drawn over to the diseased side. The healthy arytenoid and vocal cords, however, tend to compensate for the defective parts, and, in some cases, to such an extent that the voice remains fairly good.

The following case of necrosis of the arytenoid cartilage is interesting for several reasons: the persistent elevation of temperature for years, without the exhibition of any tuberculous process except the perichondritis of the arytenoid cartilage, the non-development of other tuberculous symptoms, the recovery of the patient with unaffected voice.

Miss L. B., age 33 years, applied August 20, 1892, at the Eye, Ear, Nose and Throat Hospital. The patient's voice was husky and she complained of pain in the thyroid region and of much difficulty in swallowing: her temperature was 101.5° F. A laryngoscopic examination showed defective movement of the left arytenoid, and a projection at its posterior extremity, which subsequently proved to be the necrosing arytenoid cartilage. Palliative measures were at first used, but the case became progressively worse, and as the patient was becoming emaciated on account of the difficulty of swallowing, I decided to remove the projecting cartilage by means of the cold snare. This was successively done, and a histologic examination showed the piece extracted to be the necrosing cartilage.

This operation was followed by considerable improvement in the symptoms of the patient, and an ulceration which had developed opposite the diseased area from the mechanical irritation of the rough projection of the necrosing cartilage, now yielded to the application of lactic acid.

The site of the operation now began to develop excessive granulations, and six weeks later these had developed to such an extent that they caused serious disturbance in speech and deglutition, and the pain was again considerable. An examination with the probe gave no evidence of any further necrosis. The cold snare and lactic acid were repeatedly applied, but each time the granulations recurred.

With a view of effecting a radical cure, the electro-cautery was finally used and the granulation tissue carefully extirpated by means of a pointed laryngeal electrode. The patient had become accustomed to endo-laryngeal manipulations, and, after the parts had been thoroughly anæsthetized by a five per cent. cocaine spray, the application was made without great difficulty.

This time the result was satisfactory. The parts continued to heal, and two months later had entirely cicatrized. The left arytenoid cartilage had become shortened, so that the ventricular band prevented the vocal cords from being seen except on strong phonation, but there was no infiltration or pain and but little fatigue in speaking. The defective movements of the left vocal cords were compensated for by the increased action of the right, so that the speech was not perceptibly affected.

On Oct. 11, 1894, the patient had gained five pounds and was much improved in appearance. There was still an elevation of temperature of one to two degrees daily. By means of a laryngoscopic examination, the deformity, due to the shortening and fixation of the left arytenoid cartilage, could be clearly seen, but there was no pain or discomfort in speaking or swallowing. The laryngeal condition in this case appeared to be due to a tuberculous infection, this theory being supported by the family history and the continued elevation of temperature; but it could not be corroborated by a bacteriologic and physical examination, as these always proved negative.

A most interesting feature in this case is the continued elevation of temperature. The patient has been under my observation for six years, and although her health is fairly good and she complains of no discomfort in the

throat, the appetite and weight have improved, and a physical examination has at no time revealed any pathologic condition in the chest, I have never yet seen this patient with a normal temperature. It varies from 99 to 100.5°, and at one time, when I gave the patient a thermometer and requested her to register her temperature twice daily, it never varied from this peculiarity. Various medicines have been given her without effect, the best results, however, being obtained from arsenical preparations. There is undoubtedly some focus of irritation in the system of the patient, and probably of a tuberculous nature; but urinalysis and repeated physical examinations have failed to locate the diseased area.

The benefit of the electro-cautery application, which permanently removed the granulations, which the successive applications of the cold snare and lactic acid had failed to do, is an interesting point in this case. I call attention to this circumstance, as some authors not only do not advocate the electro-cautery in the larynx, but actually warn against its use. Lennox Browne (6), for instance, expresses his opinion in the following words: "While without the galvano-cautery in diseases of the nose, pharynx, mouth and tongue, I should feel deprived of at least one-half of my power to help the conditions for which I use it, I have a strong conviction that were I to employ it in such regions as the larynx below the glottis, to the pharynx below the same level, or to the œsophagus, I should introduce into my practice a new and grave element of danger."

Other laryngologists, however, have had good results from the application of the electro-cautery in the laryngeal cavity, and this has also been my experience with this method (7). I have used it successfully in several cases of neoplasms of the larynx as well as in the case here reported, and at no time with unpleasant complications due to the use of the electro-cautery.

The application, however, requires considerable manipulative skill, and the difficulties are far greater than when the electro-cautery is used in the nose or pharynx. The cautery point itself should be light, so that it may be brought to the required degree of heat almost instantly

and cooled as quickly; this is essential, as otherwise a spasmodic contraction of the throat of the patient may inflict injury on the adjoining parts. The current should be controlled by means of a foot-switch, as the contact-button in the handle interferes with the delicacy of this method.

The patient should also first be trained for the manipulations required, which will probably be necessitated by the ordinary treatment of the case. In some patients, the irritability of the throat is such that the electro-cautery, or other operative measures, cannot be effected through the natural passages. With patience, perseverance and proper manipulative skill, however, the majority of these cases may be treated without resorting to graver external methods.

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THE SUBMERGED TONSIL.*

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(Author's Abstract.)

In a goodly number of those cases applying for treatment for nasal catarrh or for ear trouble, in which a plainly apparent hypertrophy of the faucial tonsils does not exist, it will be found, upon close inspection, that there is present a certain degree of faucial fullness, which is markedly increased by causing the patient to gag.

The patient complains of post-nasal catarrh and possibly of recurrent attacks of coryza which, at times, cannot be accounted for by the finding of nasal deformities when a thorough nasal examination is made. Very likely a report is given that the appetite is variable, that nausea, from a desire to expectorate, prevents the eating of a hearty breakfast, and that constipation is a further cause for complaint.

Quite often a history is given of attacks of tonsillitis in the present or past, and a report that the throat is abnormally sensitive and easily affected by exposure during inclement weather, though, on the other hand, not infrequently a negative reply will be given when the query as to tonsillitis is made. If the patient is a vocalist the voice will be described as unreliable—a tendency to hoarseness being manifested after vocal exertion.

Heredity will be found to play a part in such conditions of the throat, the several members of the same family being similarly afflicted. While, when in a condition of

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repose, the fauces will seem roomy and, perchance, to the observers' eye not particularly at fault, still, when the patient is made to gag, a ragged bulging mass will be protruded from between the pillars, the surface thereof being studded with enlarged follicles, from some of which may be exuding whitish, cheesy masses of the size of a pin's head, or larger, the free escape of which is furthered by pressure, and in this way it can generally be demonstrated to the patient's satisfaction that a reasonable cause for trouble exists. These masses, when compressed, emit a fetid odor, and by microscopic examination have been found to contain pyogenic germs, pus cells and other deleterious matter, the daily swallowing of which cannot be otherwise than detrimental to the patient's health. They are, in fact, a frequent cause of chronic dyspepsia.* While these beads, as discharged singly, are usually of small size, there may be found, deep in the tonsil, collections of the same material of the size of a small pea. By the use of a fine probe, bent near the end at right angle to the shaft, it can be easily demonstrated that some of the follicles are a half inch in depth. In these cases the pillars, particularly the anterior pillar, will be found adherent to the tonsil, and, furthermore, somewhat thickened, so as to cause the tonsil to be more or less submerged.

In taking the histories of these cases, it will often be learned that a tonsillotomy has been done at some time in the past, and, while after that operation there may have been an improvement, in as far as the tendency to acute attacks of tonsillitis was concerned, still there has ever since been the history, as previously outlined.

Submerged tonsils may subtract from the faucial space as much as two cubic inches, and hence may have structurally quite a material effect upon the singing voice. In addition to their mechanical effect upon the voice the diseased secretion causes the vocal cords to be constantly bathed with an irritating material, which I regard as one of the most important underlying causes of hoarseness. After radical tonsillotomy, I have often had the patient report an improvement in the singing voice, with some

*Pyncheon: The Absolute and Permanent Cure of Tonsillitis. Alkaloidal Clinic October, 1897.

elevation of the high register and a consciousness of not requiring the muscular exertion formerly required in the execution of high notes. The lower notes are also strengthened, and the tendency to hoarseness diminished, even after prolonged use of the voice, as in dictating or public speaking. I have also frequently observed an improvement in hearing.

When there is present a diseased condition of the tonsil, the disease will be found to extend to its very base. By following the general principles of surgery the clear indication is for total removal of all diseased tissue, and to obtain this result I depend almost exclusively upon a procedure known as tonsillotomy by "electro-cautery dissection," to which I called the attention of the profession nearly eight years ago.* The instruments employed were described and illustrated in *The Laryngoscope* for February, 1897.

In order to overcome the ordinary intolerance of the patient for faucial manipulations, which, in the throats being considered, is far greater than in the normal throat, I direct one to practice several times daily for a few days the introduction into the back part of the mouth successively one or more fingers, a spoon handle and the handle of a tooth-brush, using them alternately as a tongue depressor and a soft palate elevator, thereby accustoming the throat to the different sensations of different substances, and have thus generally tamed the most intolerant throats. It is not wise to operate when there is present any degree of acute inflammation, hence before operations I devote a few days to getting the throat in its best possible condition by the frequent use of gargles; and, if there be also present a nasal catarrh, I additionally order a "home treatment," consisting of the hourly sniffing of a small quantity of a mild alkaline solution.†

As a local anaesthetic I have been using a strong solution of cocain, either 20 or 33 per cent., with 10 per cent. of phenol added, which is applied with a cotton swab every minute or two upon the tonsil to be operated until benumbed, having the application also thoroughly extended to both

*The Journal of the Amer. Med. Ass'n, Nov. 22, 1890.

†Pynchon: Solutions Dobell, Annals of Ophthal. and Otol., October, 1896.

pillars on the same side. There is no advantage in using a weak solution of cocain as after being diluted with the saliva the strong solution I advise will be found to be weak enough. After cocainization I have the patient hold down one's own tongue with a specially designed tongue depressor. The tonsil to be operated is then grasped by a toothed spring forceps and pulled out well toward the median line, when a suitable electrode is entered hot and an incision made to separate the tonsil from its anterior pillar. In case the pillar is enlarged and seems to extend over the tonsil, then the incision is made where the posterior edge of the pillar should be. The tonsil is next similarly separated from the posterior pillar, the two incisions forming an apex above. Generally a series of short incisions are preferred. The tonsil is next loosened from its attachment behind and gradually dissected out until the upper half is free, when it is cut off by a transverse dissection with the same electrode. In some cases, wherein for any reason haste is necessary, the loosened upper half is cut off with a tonsillotome or curved shears. In the dissection care is taken to go in far enough so that all of the diseased tonsillar tissue is removed. In this way a comparatively deep wound is made and the lower half of the tonsil is left for a future operation.

For the operation I use a variety of cautery points bent at different angles to the shaft, varying from 30° to 90° . They are made in rights and lefts. I am particular to have the electrode sufficiently heated. A dull cherry red will not do good work. The rheostat lever is set at a point which will give a white heat in the open air after two seconds' pressure upon the contact button, and with longer pressure would be likely to fuse the electrode. In the tonsillar tissue such strength of current heats the electrode only to a sufficient degree to do good and rapid work, and thereby produces less pain than is caused by a lesser heat and slower burning. The electrode must burn and not tear its way through the tissue, and thus each vessel is sealed as it is severed.

When the operation is completed the wound is thoroughly painted with a strong solution of argenti nitras, say 90 or 120 grains to the ounce. Directions are given to gargle frequently with a solution of Merck's sodium bicarb., one

tablespoonful to a glass of water. Internally I order three drop doses of tinct. ferri chlor. in glycerin every two hours, to be swallowed slowly, and in alternation therewith a gargle of listerine and hydrozone suitably diluted. I furnish the patient with a printed sheet of directions telling how to use the medicines and giving suggestions as to diet, etc. There are also included direction to follow in case of hemorrhage.

I direct patient to call at the office each day for the first four or five days when, after spraying the wound with a D. P. solution, using a low air pressure, I apply with a cotton swab some "eisen-glycerin," which is made by mixing equal parts of tr. ferri chlor. and Merck's glycerin, with which I gently massage the wound. With these after treatments, regularly followed out, I find that the wound heals more smoothly, as adventitious granulations are thus kept in check. After the first five days I have the patient call every second day until the time of the next operation.

In from ten days to two weeks' time I take the next step by beginning at the point where the first operation ceased and continue in the same manner as before, thus removing the lower half of the tonsil.

After a similar interval I begin on the opposite tonsil and do as I did with the first. In this way both tonsils are removed by the four attacks or steps, and the time required varies from forty to sixty days. Formerly, and for a long time, I removed the entire tonsil at one sitting, but the present method gives less after annoyance and reduces to a minimum the likelihood of hemorrhage. By the former method I met with a few smart hemorrhages while by the latter method hemorrhage is a rarity and has at no time been pronounced.

With a tolerant throat the operation, meaning one step, is generally completed in ten minutes' time, and in a few cases I have even found five minutes to be more than sufficient. The burnings are of from two to five seconds' duration when a rest of from ten to thirty seconds is taken. I have often operated with so little hemorrhage as to not even discolor the saliva.

If the battery works properly the only bleeding met with may be from the use of the toothed spring forceps, which, by the way, is often the only source of pain of which the patient

makes complaint. If, while operating, a small vessel is observed to be bleeding, I at once touch the bleeding point with the heated electrode which is very likely to seal it. I have found the best hemostatic to be strong solutions of argenti nitras, ranging up to 180 or 240 grains to the ounce. When the hemorrhage is stopped I proceed with the operation.

In order to do away with the tendency to hemorrhage during the night I direct that for the first two or three nights the patient sleep with the head and shoulders somewhat elevated. Should hemorrhage at any time come on the most efficient treatment is the use of a gargle of very cold iced water, made by adding a little water from time to time to a glassful of broken ice, in which can be dissolved a teaspoonful of powdered alum. Frequent or continuous garglings with this compound will generally prove efficient. In the printed directions is given the formula for Morell Mackenzie's tannogallic acid mixture with directions for use. Ergotole hypodermically is also to be commended.

While considering hemorrhage the proximity of the tonsils to the carotids will be suggested. In the normal arrangement the nearest carotid is one-half inch from the base of the tonsil before it is drawn outward, and by this means the distance is increased to one inch, as the loose cellular tissue posterior to the tonsil is generally very yielding. The only serious danger of hemorrhage during any tonsil operation is due to the possibility of meeting with an anomalous distribuion of the vessels. The greatest danger of secondary hemorrhage is dependent upon either kidney trouble or upon the tendency to hemophilia.

It might be thought that so free a use of the electrocautery would insure cicatricial contractions. Such is not the case, as mucous membrane is not affected by burns as is the skin. The eventual result is to leave pillars of normal form and character. The worst cicatrices, if I may so call them, with which I meet, are the stumps often remaining after an ordinary amygdalotomy.

While in this paper electrocautery dissection is being advanced as a desirable method of treating the submerged tonsil, I employ the same procedure in removing tonsils partially submerged, and for the separation of tonsillar

adhesions to the pillars prior to an ordinary tonsillotomy. In any case wherein hemorrhage might be looked for, as in a fibrous tonsil in the adult, it is indeed the method of selection, and the same may be said of this operation in those rare cases wherein tonsillar calculi are met with.

This operation, though originally designed for adults only, I have been latterly employing with children as young as 7 or 8 years, the only difference being that less is done at each sitting and the number of steps increased while the interval between operations is decreased. In this operation, as usually done, the after soreness is more pronounced after the removal of the upper half of each tonsil than after the removal of the lower halves. This is due to the fact that in operating on the lower half the wound is more shallow as the upper half extends in much deeper. In fact there is generally the greatest reaction after operating the first half of the first tonsil, the succeeding steps being comparatively easy.

In reply to all the fanciful objections to removing the tonsils, and in addition to what has been previously said, I will add that when tonsils are diseased, as they surely are in the condition described, their functional capacity is irrevocably destroyed and therefore, in accordance with the principles of latter-day surgery, the only possible indication must be for total ablation.

COLUMBUS MEMORIAL BUILDING.

ACUTE SUPPURATION OF THE MIDDLE EAR.

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Acute suppurative disease of the middle ear is not of common occurrence, compared with the frequency of other types of active inflammation of this organ.

Causes.

The causes may be classified under two heads, as follows:

(1) *General*.—Such as exposure to cold, climatic influences, etc.

(2) *Specific*.—Such as exanthemata, typhus and typhoid fevers, pneumonia, diphtheria, influenza, operations in the nasal and post-nasal spaces, presence of foreign bodies in the tympanic cavity, douches, etc.

General causes act only indirectly in the production of this disease after manner exerted in other affections of mucous-membrane-lined cavities, giving rise to what we understand as acute catarrhal inflammation. Sudden determination of blood to the part, turgescence of membrane causing obstruction to the ventilation and drainage, the accidental entrance of infected air, all conspire to produce the migration of pus corpuscles.

Specific causes act by the direct introduction of septic material through various channels to the middle ear. The purulent discharges found in the pharyngeal vault accompanying the exanthemata, diphtheria and the like, gain entrance through the Eustachian tubes. The blood vessels may convey the virus of typhus or typhoid fever to this delicately lined cavity. Inflammatory processes existing in the labyrinth and about the base of the skull may extend to the tympanum.

Extensive research by competent pathologists fails to

disclose the fact that micro-organisms are essential to the development of suppuration within the tympanum. Zaufal and Rohrer and others have spent much time in the isolation of a germ distinctive of this disease, and much interesting literature has been contributed by them. Zaufal found the following organisms in the pus from this cavity: *Streptococcus pyogenes*, *pyogenes albus* and *aureus*, *cereus albus* and *tenuis*, *bacillus tenuis*, *bacillus pyocyaneus*, *micrococcus tetragenus*, *saccharomyces albicans*, *diplococcus pneumonia* and the *bacillus pneumonia* of Friedlander.

In no instance did he find one species operate alone, but the combined action of two or more served to maintain the suppurative process. Rohrer found the cocci alone existed in the non-fetid secretions, while bacilli were abundant in fetid discharges. He also suggests that the presence of streptococci indicates a severe form of inflammation, and a liability to mastoid involvement.

It is possible for pus to pass directly from the cranial cavity through some canal or opening between the bones into the middle ear, causing an inflammation, with perforation of the drum membrane. Gruber has been able to diagnose this condition, and has reported cases to prove his accuracy.

Kohn reports two cases of middle ear suppuration during dentition. A number of cases are recited in which different foreign bodies acted as the specific causes. Fleischman found a barley grain upon post-mortem examination in the Eustachian tube. Heckscher relates a case where a raven's feather was found fixed in the tube, producing inflammation. Schall reports a case in which he found a small piece of rubber syringe lodged in the Eustachian tube. The indiscriminate use of nasal douches, diving into salt water and such like practices, are frequent causes of middle ear suppuration. The forcible entrance of these fluids, and the lack of adequate drainage to this cavity, serve as ample cause of inflammation. Operations within the nasal and post-nasal spaces are sometimes followed by this disease, due to the entrance of infected material.

Symptoms.

Deafness is usually the first noticeable symptom of this disease, followed closely by a deep-seated excruciating pain within the ear. An elevation of temperature ranging from 101° to 103° is manifest, which is in marked contrast to the slight fever of acute catarrhal conditions. Severe headaches are located about the affected side. Constipation is usually present, and the general appearance of the patient suggests marked constitutional disturbances. The symptoms are more pronounced in children than in adults. In the former, the attack is often ushered in by convulsions, while in the latter a severe inflammation frequently causes but comparatively slight discomfort.

Tinnitus is sometimes, though not always, present in the early stages. Vertigo may, likewise, exist. The area of pain gradually increases and continues, until natural or artificial measures for its relief are found. A temperature above 104° betokens a serious condition of the patient, leading one to suspect the involvement of brain structures, or a sinus invasion, or both. This severe complication would hardly show itself previous to a mastoid inflammation. A very rare occurrence is that of labyrinthine involvement, and the symptoms denoting this are dizziness and nausea, in addition to those already enumerated.

The physical signs are of greatest importance. At the very onset of the attack we may be able to get valuable information from the inspection of the drum membrane. We will find it to be of uniform scarlet red, or yellowish red color. This is so intense as to destroy the outline of any blood vessels upon its surface. The handle of the malleus is usually hidden from view, while the short process presents a whitish yellow aspect. The membrana flaccida sometimes protrudes to the extent of touching the floor of the canal, excluding from view the membrana vibrans. Of course, this occurs only in those case where the vault is the seat of the trouble. In some cases we may find small localized bulging areas presenting much the appearance of granulations; we are to infer that the discharges are confined to pockets made by adhesions, the

remains of a pre-existing inflammation, or to folds of mucous membrane within the tympanum.

In some cases of sudden appearance such as follow measles, scarlet fever and the like, we may find the drum membrane in no way resembling the signs just given except in evidence of fluid. In other words, instead of a deeply reddened aspect we find a dull grayish white color, such as might be found in an old necrosing otitis. This is but a superficial epithelial necrosis, and can usually be made to disappear by applying the cotton pledget bathed in hydrogen peroxide.

Treatment.

Much difference of opinion exists in regard to the proper treatment of this disease. Some authorities insist that a conservative course gives the best results; while others of equal experience urge the employment of more radical measures. The conservatives advocate the use of such means as will alleviate the suffering of the patient without resort to surgical interference; in other words, they advise against paracentesis, while the radicals urge the performance of this operation upon the first evidence of fluid.

All agree that abortive treatment should be vigorously carried on in the initial stage. This consists in local blood letting by leeches in front of the tragus, by counter irritation with blisters, the use of heat (sometimes cold), preferably dry heat, and the internal administration of laxative or purgative.

My experience urges the use of as much as half grain doses of calomel every half hour until copious evacuation of the bowels is obtained. Injections of warm water into the ear from a fountain douche but slightly elevated, is of much benefit in relieving pain. The internal administration of tinct. of aconite does much good in lessening the severity of the attack by controlling arterial tension. Acetanilid, phenacetine or antipyrine in $2\frac{1}{2}$ to 5 grain doses to an adult every two hours will, in most cases, relieve pain.

Opium should not be given, if possible to avoid it, until the bowels have been evacuated thoroughly. This plan of treatment, if strictly carried out, will cut short many

attacks, even though symptoms of a severe form show themselves; in cases dependent upon general causes its efficacy is particularly noticeable. I believe that in such cases we get the best results by adhering to a conservative course of action, for I cannot help thinking that early paracentesis, by opening the way for direct infection, here leads to the changing of a simple catarrhal condition to a suppurative process. Would it not be just as well, to say the least, to wait a few hours or a day, even though some evidence of fluid exists, in the hope that our already planned treatment may be of sufficient aid to nature to lead to recovery? In most of these cases we lose but little vantage ground by delaying until spontaneous rupture takes place, and in many instances this never occurs.

I can call to mind two cases occurring in my private practice within the last year in which I yielded to the wishes of the patients, and delayed opening the ear. Both recovered without rupture and with no unpleasant results, although in each instance there was distinct evidence of fluid, together with other symptoms more severe than would indicate simple catarrhal inflammation. Quite the reverse of this conservative procedure is, I believe, indicated in those cases dependent upon specific cause. When a case gives a distinct history of a malady such as would give origin to septic infection, I think that we are in duty bound to open the cavity, and allow escape of its contents; the quicker the better. In these cases spontaneous rupture subjects the patient not only to danger of great destruction of the drum head and necrosis of the ossicular chain, but to the greatest of all complications, mastoid and cranial involvements.

Be careful in every instance to make a free opening—one that will not close up, and require a supplementary operation. The classical seat of this incision is in the posterior inferior quadrant, but it has always been my practice to open at the point of greatest bulging, and good drainage will usually be obtained. Thorough cleansing of the canal previous to this procedure is of greatest importance.

After drainage is well established, the duty of the surgeon lies in its proper maintenance, and in the employment of every means to insure strict cleanliness of the

canal. Having accomplished this, his work is done so far as the ear is concerned. Continued application of dry heat will facilitate the discharge. Injections of tepid boracic acid solution into the canal two or three times daily, followed by insufflation of the powdered acid, will preserve due cleanliness in most cases.

Inflammations of the nose or naso-pharynx should receive proper attention. Applications of 20 to 30 grain solutions of silver nitrate to the orifices of the Eustachian tubes, have proved valuable in my hands for the relief of tubal congestion. Granulations often appear about the perforation and in the canal after the first week of the discharge, and should be speedily removed. Tri-chlor-acetic acid serves an admirable purpose just here. I prefer it to chromic, for the reason that its action is more limited, yet sufficient to destroy the growths.

The greatest vigilance should be observed at this juncture, with reference to the mastoid. Upon the first appearance of deep-seated pain in this region, with tumefaction about the tip of the process and enlargement of cervical and post-cervical glands, with sudden elevation of temperature, we should resort to the cold water coil used without stint, and to the administration of drugs for the control of the fever. In some cases I have found the use of the hot water bag, continuously applied, to be as efficacious as the cold; but when agreeable to the patient, cold is better. For the relief of the pain, which is always severe, nothing compares with opium. However, should constipation follow, due attention should be given to the bowels. This plan of treatment should be carefully adhered to until all symptoms disappear, or until their aggravation becomes so extreme as to leave no doubt of the involvement of the mastoid structures.

It is remarkably strange to see some of the most aggravated cases recover without operation. A very striking illustration of this occurred in my practice just a month ago. A young lady 19 years of age, with incipient typhoid fever, was suddenly attacked with acute suppuration of the middle ear. Within a few hours after the appearance of pain, distinct bulging was manifest. Paracentesis relieved the distressing symptoms. The discharge continued for three weeks, apparently improving as the

fever abated. Suddenly, in the fourth week, there appeared all the symptoms of mastoid complication. Marked elevation of temperature—great pain extending from auricle to occiput—swelling in front and behind the process, destroying its outline; protrusion of the auricle; difficulty in opening the mouth. Extreme debility of the patient tended to an aggravation of all these symptoms. This change occurred on Wednesday afternoon of the fourth week of her illness. I proceeded to apply all the remedies at our command in a very vigorous manner. She protested against the use of cold, so the hot water bag was applied in its stead. It was used hot to the point of endurance, and continued without cessation night or day until Monday morning. Two and a half grains of phenacetin was given every two hours, with an occasional dose of morphine. This was found sufficient to keep the patient fairly comfortable, and after the second day it controlled the temperature to a point below 101° .

Her symptoms, excepting the temperature, grew steadily worse, and on Sunday it was agreed, after consultation, that I should operate on Monday morning. I would have operated on that day (Sunday,) had her temperature not been normal, or nearly so. The hot water bag and phenacetin were continued, and upon my visit Monday I found a decided improvement in every particular. My patient grew rapidly better, and at the time of this writing she is perfectly free from both typhoid and ear disease. Her hearing in the affected ear is 40/40, her only discomfort being slight tinnitus, which is rapidly disappearing.

This was a case of undoubted periostitis confined to the process, but many symptoms were sufficiently severe to indicate cell inflammation. Delays are often dangerous, and a nice point sometimes it is to differentiate between a severe inflammation of the periosteum and a deeper structural invasion. The points of difference are sometimes hard to define, but they do exist, and he is most successful who exercises good judgment at this crucial stage.

One thing in addition with reference to the treatment of this and other acute middle ear diseases, and that regards the use of Politzerization, or catheterization in the active stages of inflammation. I fail to see any benefit to be derived from use of force to evacuate the contents of dis-

eased cavities like these. The material is soon reproduced, and to be effective it should be again quickly expelled. On the other hand, it is altogether possible to force these discharges into the antrum or cells of the mastoid, there to act as excitants of active inflammatory processes. I can recall two cases of mastoid disease that gave no signs of existence until after inflation. I had used every precaution to admit of free evacuation through the drum head; used as little force as possible to accomplish my purpose, and yet closely following this came the unfavorable symptoms.

My inferences may be wrongly drawn, but my results are more satisfactory when I refrain from inflation until all appearance of active inflammation and discharges have ceased.

MASTOIDITIS.—WHEN TO OPERATE AND HOW.*

BY ANDREW TIMBERMAN, M. D.,

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Of all aural affections there is none in which the responsibility for the proper advice and the institution of proper measures for its relief rests, so largely upon the general practitioner as it does in cases of mastoid involvement. The close relation to the acute exanthemata, the diseases of the upper respiratory passages, and other common affections, is such that he is, even in this day of specialists, usually the first professional consultant; and it, therefore, will depend upon his ability to properly differentiate the manifold evidences of an abnormal mastoid, to save, in many cases, not only the function of hearing but the life of his trustful patient.

The aural specialist should have knowledge of each of the many phenomena of mastoid disease. The subject, as briefly treated within the narrow limits of this paper, concerns matter of practical importance to the busy family doctor.

As regards when or how to operate but little will be said. I shall depend upon an inspection of these anatomical specimens, knowing that thereby a better conception of the various procedures and conditions will be obtained.

The harder question any physician or surgeon must answer is, not how to operate, but when to operate, demanding as it does a keen appreciation of all the attending phenomena and a discriminating estimate of their effect upon, first, the life of the individual and, second, upon the function of the part or parts implicated. If I shall succeed in accommodating myself to just such conditions as encompass the family physician, and then arrive at short and simple conclusions which will aid him in determining what course to pursue in these cases of mastoid involvement, I shall have served my purpose.

*Read before the Mississippi Valley Medical Association, Nashville, Tenn., October, 1898.

At the outset, the writer would express it as his opinion that the physician who fully realizes the dangers to which aural diseases, both acute and chronic, may lead, is more apt to give proper advice than one who is accustomed to regard them as troublesome sequelæ, beneath his dignity to notice. One large hospital has shown recently by its statistics that 1 in 300 deaths were directly traceable to diseases of the ear. To this number must be added, without doubt, a large number ascribed to other diseases, susceptibility to which was made easy by the lowered vitality occasioned by the absorption of the septic material from the aural apparatus. But, apart from the number of fatalities which they may occasion, and which causes us the most concern, though as yet little enough, the diseases of the ear should interest every physician because of their tendency to destroy one of the special senses, which is so conducive to his patient's happiness; and the preservation of this function will well repay the dangers and suffering of the most drastic surgical procedure.

Our subject implies a consideration of all conditions which lead to direct or indirect involvement of the mastoid. To know when to operate, one must be able to exclude the diseases which are often accompanied by inflammatory conditions over the mastoid without an actual involvement of the bone, and which quickly recede when the primary disease is properly combatted. Within the experience of every medical man will be seen cases of simple furunculosis and diffuse external otitis presenting as marked symptoms painful and swollen mastoids. The tissues are boggy, edematous and painful on pressure. Such diseases, as well as syphilis, must always be excluded before operating.

But there are two conditions most frequently met with in which mastoiditis is common and in which it should be regarded as the signal of danger. I refer to the acute and chronic otorrheas, which are so often brought to the attention of the family doctor for advice and treatment. Unlike a diffuse external otitis, and unlike a simple furunculosis, a true mastoiditis does here occur, and demands a prompt decision as to what shall be done. May we temporize and attempt to abort serious present danger, or may we operate at once, impelled thereto not alone by present

urgency, but by the knowledge that danger threatens even in a quiescent state of the disease?

It has long been a conviction with me that to the general practitioner, *one* of the best and safest guides is the etiology in a given case of mastoiditis. Manifestly the surgeon's aid should be sought earlier in those cases where experience and history proves that persistent and deep-seated structural changes occur, involving not only the function of the organ, but imperilling the life of the individual than in those cases where the disease usually is successfully combatted by simpler therapeutic measures, and where there is no great tendency to hasty and extensive destruction of tissues. The *tendency* to destructive effects must, however, be the criterion (we are speaking now of the etiology and its relation to the sequelæ), as a violent mastoiditis after some simple causative factor often may be easily combatted by simple measures, while a much milder form of the disease may demand the most drastic treatment. For example: We may have a violent action set up in the post-auricular tissues, as an accompaniment of a serous otitis of simple origin, which may quickly respond to the cold coil and paracentesis of the drum. On the other hand, a mild type occurs in tuberculosis of the mastoid which, nevertheless, will demand operative treatment.

As is well known, the infection of scarlet fever and diphtheria is an intensely virulent one. The tissues seem to be literally overwhelmed by the contagion, so that, even within a day or two, extensive sloughing of the mucous membrane lining the middle ear takes place, along with a perforation of the membrana tympani, which may be so extensive as to comprise nearly the whole of that membrane. Whether it be due to the swollen tissues interfering with the circulation, as Schwartze believes, or whether it be due to the action of the specific cause of the disease, as Politzer believes, is not pertinent from a practical point of view. The chief point for us to remember is, that its action is quickly destructive in its immediate effects, and that it is one of the most potent and frequent causative agents of chronic suppurative diseases of the ear, which are now recognized as the most serious of all aural affections. In recognizing this infection as the etiologic factor

in a case of mastoiditis, to my mind it constitutes one of the strongest arguments for hasty and thorough measures to control the disease. An early paracentesis of the drum, if possible, within the first few hours of the development of aural symptoms, combined with active catharsis and application of leeches and cold water may avert a threatened invasion of the mastoid, but hardly abort serious damage when once firmly established.

Mastoiditis occurring as a complication of those chronic suppurations wherein scarlet fever has played the chief etiologic role, will nearly always demand operative interference sooner or later, if a cure be expected. Sometimes the focus of osseous erosion left in its wake may be so limited, either to the tympanic walls or to the ossicles, that its removal may be accomplished and a cure thereby effected. The focus usually is, however, so situated that it cannot be reached, except through the mastoid. Often a cholesteatomatous condition exists, which, for its cure, necessitates the opening of the mastoid cells and a thorough eradication of the morbid tissue.

Within the past decade a new causal factor in mastoiditis has appeared in influenza. While in many cases it displays a mild type, in many others its action upon the tissues of the middle ear is, in virulence, second only to that of scarlet fever and diphtheria, so that if the process be not allayed within a few days by early paracentesis of the drum and antiphlogistic measures, opening of the mastoid cells is indicated. As in scarlet fever, safety lies in hasty action, rather than in temporizing measures.

Of the other infections none are so baneful in their influences so destructive in their tendency, nor so intense and hasty in their action. Determination upon surgical procedure, therefore, may be made with somewhat greater deliberation.

Keeping the etiology in view, we may divide our cases of mastoiditis into two classes, and note some of the clinical signs and symptoms which should influence us most in the determination of resorting to surgery for aid. The first class will comprise those complicating acute aural diseases; the second class, those complicating chronic aural affections. This division ignores primary mastoid-

itis, which is, however, infrequent. Now, how shall we care for them?

In mastoiditis, complicating an acute otitis, an early paracentesis of the membrana tympani should be done, at least as soon as cerebral symptoms develop, in order that these symptoms, so far as they may be due to the intratympanic pressure, may be relieved and good drainage secured.

Following this, the local abstraction of blood from the mastoid, either by leeches or by artificial means, and the application of cold (ice bag or Leiter's coil,) are our most potent aids. Absolute rest in bed and active catharsis are necessary and helpful adjuncts. The middle ear should be kept clean, if necessary, syringing with normal saline solution. If the pain is relieved, the temperature and pulse rate lowered, and cerebral symptoms disappear, the probabilities are that the patient will recover, provided that the infection is of a mild type, as in acute coryza or measles. It may be necessary to repeat the paracentesis a second, or even a third time. But if the infective agent is a virulent one, as in scarlet fever or diphtheria, the probabilities are not so favorable. Here paracentesis should be done as soon as aural symptoms develop, and any tendency to a recurrence or prolongation of the disease will be more safely treated by opening the mastoid than by prolonged efforts at abortion with milder therapeutic agents.

Prof. Schwartze says that if subsidence of the threatening symptoms, pain, fever or swelling, does not occur in acute suppuration within at most eight days, the free opening of the mastoid is indicated, I cannot but feel that if this period were shortened for the cases of scarlet fever, diphtheria and the worst cases of influenza, fewer cases of chronic suppuration would be engrafted upon the acute otitides.

Not infrequently a case similar to the following is seen: The patient has had an acute suppurative otitis with mastoid involvement, in which the cardinal symptoms of pain, fever and edema have subsided, but have not entirely disappeared. On deep pressure pain is elicited, and a very slight infiltration of the tissues is detected. A slight elevation of temperature, a half or one degree, is noted.

Patient feels rather well, making little or no complaint—an occasional twinge of pain on the affected side alone being mentioned. What to do with such a case will then depend upon the otoscopic examination, of which I have, thus far, made no mention. To my mind there is but one otoscopic sign, which, when present, invariably calls for operation in these acute cases.

There is certainly nothing conclusive about the bulging of the drum, the size of the perforation, nor the amount, odor or character of the discharge; but there is something conclusive in that condition of the cutaneous lining of the supero-posterior wall of the external auditory meatus, in which it shows a bulging downward and forward, carrying with it the membrana Shrapnelli. Be the case mild or severe, this condition is a sign of the involvement of the mastoid, and invariably constitutes an indication for opening the same.

In the second class of cases, or that following chronic suppurations, there is, it seems to me, but little need of discussion. An otherwise incurable otorrhea may well be regarded as a proper indication for surgical measures, so soon as it is settled that its origin is somewhere outside of the tympanic cavity. But *mastoiditis* in these *chronic* otorrheas is the final signal of an impending catastrophe, and for the physician to wait until symptoms develop indicating intra-cranial involvement is considered but little short of criminal negligence. Mastoiditis supervening on a chronic otorrhea is a menace to the life of the individual, and constitutes an imperious demand for surgical interference. The cases that one may see recover, in the course of an ordinary experience, should have no influence in the determination of the question.

Otoscope examination in these cases will show a greater or less destruction of the membrana tympani, often reaching to and involving the marginal ring and supero-posterior wall, the whole forming a crater-like opening into the recessus epitympanicus, into which a bent probe may be passed. Aurists now generally recognize this condition, of itself, as sufficient reason for opening the mastoid. They deem it imperative in an acutely inflamed condition of the mastoid, associated with a chronic otorrhea.

Conclusions.—Operative measures should be instituted:

1st. To preserve the function of the hearing, as well as to prevent a fatal issue.

2d. Earlier in mastoiditis due to scarlet fever, diphtheria and the worst cases of influenza than when due to colds, measles, typhoid fever, etc.

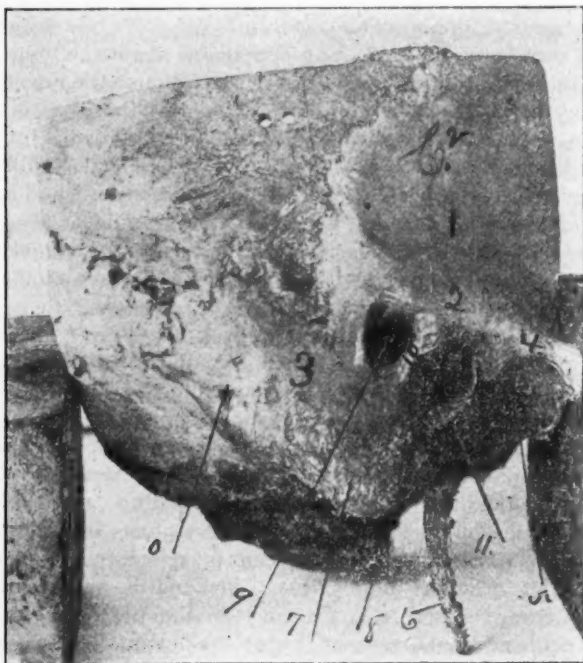


Fig. 1. Right Temporal Bone Illustrating the "Typical" or Original Schwartz Operation for opening into the Mastoid Antrum.

1. Squamous portion of temporal bone; 2. Linea Temporalis; 3. Zygomatic process; 5 and 11. Glenoid fossa; 5 for condyle of lower jaw, 11 for parotid gland; 6. Styloid process; 7. Tip of mastoid; 8. External auditory meatus; 9. "Typical" or Schwartz operation for opening into mastoid antrum; 10. Wedge of bone left between external auditory meatus and artificial opening into mastoid antrum; just right of the number 10 is seen the spina supra meatum indicating the level of the antral floor; 0. Mastoidal foramen.

3d. In the acute cases of mild infection when subsidence does not occur within at most eight day (Schwartz). A shorter period is safer in a virulent infection.

4th. Recurrent mastoiditis due to any cause.

5th. In mastoiditis complicating a chronic suppurative otitis.

6th. In acute cases when there is a dropping of the lining membrane of the supero-posterior wall of the external auditory canal, carrying with it the membrani Shrapnelli; in chronic cases, when at the same place, a crater-like opening leads to the recessus epitympanicus and aditus ad antrum, even though, in neither case, symptoms immediately menacing life be present.

How to Operate.—Here I have promised to be brief because the anatomical specimens* will demonstrate better than words will express what is accomplished in each operation, only two of which shall be considered, and the steps simply outlined. The first is the "typical," or original Schwartz method of opening into the mastoid antrum. It constitutes as well the first step in the second method, the Schwartz-Stacke or "radical" operation, which consists in the obliteration of the middle ear entirely so that we have an external and an internal ear only. Just when the first method is to be used to the exclusion of the second is not always easy to determine. A broad and general rule, quite elastic in its application is, however, to do the original Schwartz or "typical" operation in acute cases, and the Schwartz-Stacke or "radical" operation in the chronic cases. The latter is demanded in cholesteatoma, in sinus-thrombo-phlebitis, and in cranial abscess and localized meningitis of otitic origin.

†"The patient must be prepared, as is usual for a major operation, and a general anesthetic is necessary. Three assistants and a trained nurse are required for the "radical" operation. After the preliminary curvilinear incision is made, all hemorrhage controlled and os planum mastoideum well exposed, the ablation of bone is accomplished by means of a mallet and chisels. The two landmarks are the linea temporalis, marking the inferior boundary

*Exhibit before the Society.

†Quoted from a paper entitled "Intracranial Complications of Aural Disease—Prophylaxis and Treatment," read before the Ohio State Medical Society, Columbus, Ohio, May, 1898.

of the middle cerebral fossa and the spina supra meatum marking the level of the floor of the mastoid antrum."

"In opening into the antrum several precautions are necessary in order to avert danger. The sigmoid sinus

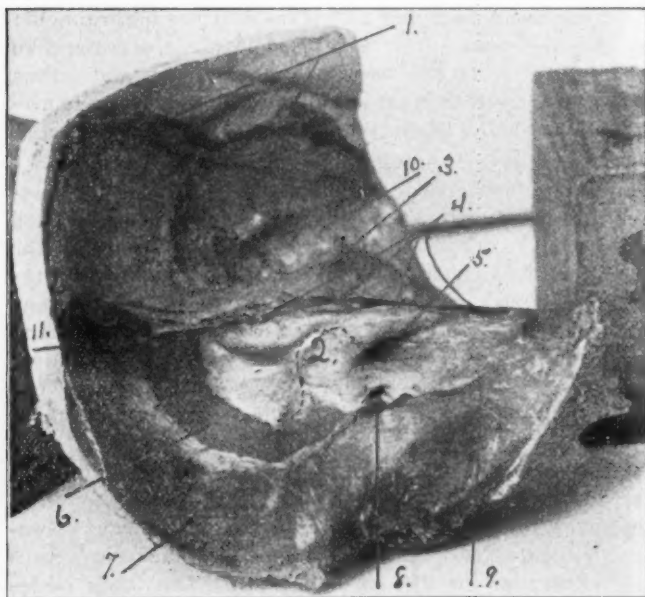


Fig. 2. Left Temporal Bone, Inner Surface. Dura mater in situ demonstrating very beautifully the relations of lateral, sigmoid, superior and inferior petrosal sinuses. 1. Reduplications of duramater; 2. Posterior surface of petrous portion of temporal bone. The dotted line shows position and form of the jugular bulb. 3. Eminence on anterior surface indicating situation of the superior semicircular canal; 4. Lines pointing to superior petrosal sinus; 5. Internal auditory meatus; 6. Sigmoid sinus; 7. Cerebellar fossa; 8. Jugular foramen; 9. Inferior petrosal sinus; 10. Lodgeus temporo-sphenoidal lobe; 11. Lateral sinus.

is usually so situated that sufficient room is afforded for the funnel-shaped opening to be made in the mastoid. Often, however, it is so near the posterior wall of the external auditory canal that it is impossible to proceed in the usual manner, but the posterior wall must be first re-

moved. Wounding this vessel constitutes the greatest danger in the operation, though wounding the facial nerve or penetrating into either the cranial cavity or internal ear structures is fraught with dangers, and must be avoided."

"On the completion of this first step in the operation there is simply the funnel-shaped opening into the mastoid antrum, with a ridge of bone intervening between it and the external auditory canal. No encroachment upon the tympanic cavity, its contents, or the aditus ad antrum is made. If perforation of the membrana tympani be present, as is usual, irrigation of the middle ear may be practiced, but should be discountenanced, as no one may say that erosion of some portion of the osseous wall has not occurred, exposing the membranes of the brain and, if this exists, irrigation increases the danger of pus finding its way into the cranial cavity. It is better, therefore, merely to cleanse with pledgets of gauze. To complete the operation the opening into the mastoid is lightly tamponed with gauze, the periosteum is replaced and the upper and lower portions of the wound sutured, leaving the central portion open to facilitate dressing and permit of drainage."

"The operation just described is known as the 'typical,' or original Schwartze method of opening into the mastoid antrum. Its success under given conditions justifies its application; its failure under given conditions has resulted in a more perfect procedure styled the Schwartze-Stacke or 'radical' operation."

"This is done as follows: After opening into the antrum the membranous external auditory canal is separated from the posterior wall, the ridge of bone is removed, as also are the hammer, anvil and the intervening and projecting spicules of bone; then the whole surface of the now single cavity of the middle ear is made smooth and freed from carious processes. The posterior membranous wall is then slit up as far as the concha and cut again at right angles to the first, thus securing two flaps, which are turned back to prevent cicatricial contraction of the membranous canal, as well as aid in epidermization of the cavity. The cavity is then lightly packed with gauze, both from the meatus and posterior opening, stitches are

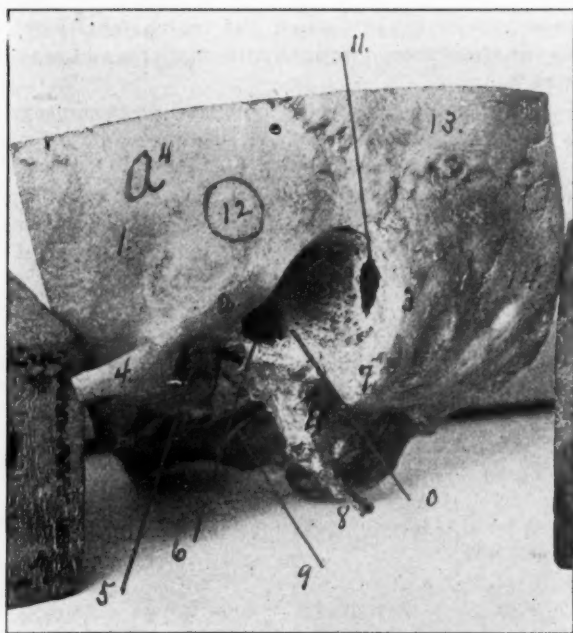


Fig. 3. Left Temporal Bone. Demonstrates the "radical" or Schwartze-Stacke operation for conversion of the middle ear and external auditory canal into one common cavity. Indicated in most intracranial complications of otitic origin, in cholesteatomata of the middle ear, and often in otherwise incurable suppuration of the middle ear accompanied by caries, etc. 1. Squamous portion; 2. Linea temporalis; 3. Mastoid portion; 4. Zygomatic process; 5. For condyle of lower jaw; 6. Tympanic cavity; 7. Tip of mastoid; 8. Styloid process bent inward; 9. Bristle passed through sigmoid sinus and having its exit from jugular bulb; 10. Ridge of bone left after chiseling away wedge of bone (10 in Fig. 1). This ridge is formed of compact bone and conceals the facial nerve. At the inner end of this bony ridge, a rounded tubercle of bone is seen which conceals the nerve as it changes its course outward and downward; here also is concealed the horizontal semicircular canal; 11. Sigmoid sinus exposed to view indicating how and where this vessel is approached in thrombosis; 12. Point for trephining for temporo-sphenoidal abscess; 13. Parietal bone; 14. Occipital bone.

inserted in the upper and lower angles of the wound and the head well bandaged."

"If there is one point in the care of these cases worthy of special emphasis, that point is the after treatment. No operation in the whole domain of surgery, which I can now recall, demands as much special skill and experience to properly conduct the after treatment as does the 'radical' mastoid operation; and this statement will be best and most heartily attested by those who, after a ripe experience in general surgery, have taken up the special work in aural surgery. The operation completed, the surgeon's work is only half done. To restrain excessive granulation, to guard against the formation of synechiæ, to prevent cicatricial contraction of the external auditory canal, and to secure complete epidermization of the whole cavity, and yet retain or improve the hearing function presents a problem that none but the experienced should attempt; for, be it understood, that in the majority of these cases not only is it the endeavor of the surgeon to cure the local disease, but to retain as well the special sense of hearing."

POSTICUS PARALYSIS. (PARALYSIS OF THE
CRICO-ARYTENOIDEUS POSTICUS.*)

BY DR. A. KUTTNER AND DR. J. KATZENSTEN.

Translated by Hanau W. Loeb, A. M. M. D., St. Louis.

From the Archiv fur Laryngologie, and Rhinologie, Vol. viii, p. 181.

In Vol. VI, of the *Archiv fur Laryngologie and Rhinologie*, Grossmann contributed a paper whose aim was to show that Semon's teaching in regard to posticus paralysis was untenable, and in its place endeavored to establish a theory of his own.

By reason of the importance of Semon's law reaching beyond the limits of laryngology, it seems to us necessary to make a thorough investigation of Grossmann's objections and to examine critically his experiments in order to obtain the most uniform results. In this particular Grossmann aided us with the laryngometers and mouthgag which he used and Prof. Exner kindly tested the optical instruments required. We take this occasion to thank them both. Later we replaced the gag received from Grossmann by the instrument described by Cowl, in Vol. VII of Fränkel's *Archiv* which permits a fine view of the entire larynx. Musehold's magnifying tube was especially serviceable in permitting a very careful analysis of the movements of the vocal cords. By means of an objective provided with a millimeter scale, it was possible to measure not only all distances, but also all movements, excelling in this particular Exner's instrument. We are grateful to Dr. Musehold, who for some time lent us his own instrument.

Permit us to refer in brief to Semon's law, and in order to meet each of Grossmann's objections, exactly as he him-

*This masterly reply to Grossmann's attack upon Semon's theory comprehends a summary of Semon's views and Grossmann's objections as well as the arguments which the writers advance in agreement with the former and in opposition to the latter and therefore the translator has ventured to present it to his English-speaking colleagues. H. W. L.

self has stated it. It runs as follows:—"In progressive organic diseases affecting the trunk of the recurrent laryngeal nerve or its common origin, the abductor muscles innervated by the motor fibres of this nerve—the crico-arytenoidei postici—are regularly and invariably the first to become paralysed and degenerated, while the other muscles which receive motor impulses from the same nerve suffer the same fate only after further progress of the disease."

In regard to this law, three stages in the course of progressive recurrent paralysis can be differentiated in a manner somewhat schematic but exceedingly helpful to the understanding; each is characterized by a position of the vocal bands peculiar to it alone.

STAGE I. Simple paralysis of the crico-arytenoideus posticus. The vocal band on the affected side is oblique when at rest, its posterior end inclining about 2 mm. from the median line. In phonation and occasionally in forced respiration, it is drawn to the median line but returns to the above characteristic position on cessation of the movement.

STAGE II. Paralysis of the crico-arytenoideus posticus, complicated by secondary contraction of the adductors. The affected vocal band stands in or close to the median line and as long as the highest degree of contraction has not been reached, undergoes no phonatory nor respiratory movements.

STAGE III. Paralysis of all the muscles supplied by the recurrent. In this the adductor as well as the abductor fibres are affected and in consequence of this new paralysis, the contraction of the abductors disappears. The edges of the vocal bands are stationary, two to three mm. from the median line (cadaveric position.)

In opposition to these (Semon's) explanations of the laryngeal picture following disease of the recurrent, Grossmann has proposed a whole series of objections through which he seeks to prove that Semon's conclusions are not in accordance with facts. In order to facilitate matters, permit us to arrange these objections in accordance with the scheme just suggested.

Grossmann (page, 337) gives the first stage as follows: "In the beginning of the process, it is said, there regularly

appears, first a posticus paralysis. In this beginning stage, there is, of course, no thought of an abducted or median position as long as the abductors alone are paralysed. The vocal bands on the contrary continually shift their position according as the adductors contract or return to the position of rest. We must therefore recognize in contraction a median position, while in rest where the action of the abductors as well as the adductors is inhibited, a certain median position is taken."

Regarding the laryngeal picture Grossmann (page, 337) further says:—"This classic stage thus characterized where a primary posticus paralysis still exists by itself, we do not meet in the course of recurrent paralysis," and in another place (p. 339) "no one has, up to this time, seen a case of posticus paralysis, existing by itself, but uncomplicated by contraction of the adductor, and hence no one can speak of the peculiar position which results therefrom."

In answer to this we must say, as Semon in his answer to Grossmann, that this objection is to be explained only on the ground that Grossmann must have neglected the whole literature of the subject, for he could not have claimed that no man observed this stage, if he had known that many cases—Semon counts 22—had been reported which showed the position of the vocal bands in accordance with his *a priori* postulate and explained their occasional observation as an uncomplicated posticus paralysis.

Even in the six lines of his second paper which he uses as an answer to this argument (p. 394) Grossmann says nothing of the value of this clinical fact.

One of us (Kuttner) observed three such cases whose actual existence was confirmed by others. According to the view heretofore prevalent, the laryngeal picture in two cases was that of posticus paresis while the third was a typical posticus paralysis. The observation of these cases during the past six months confirms conclusively Semon's postulates; the left vocal band is about one to two mm. from the median line when at rest. The free border is slightly concave. Upon phonation, the left band as well as the right is drawn to the median line while the concavity on the left side does not entirely disappear. At the end of phonatory adduction, the vocal band recedes this distance from the median line without being drawn beyond the dis-

tance just mentioned. The right traverses two or three times as far in abduction and adduction and the left arytenoid cartilage is slightly nearer the anterior commissure.

We may for the present pass over the possibility that every other explanation of this laryngeal picture is unconditionally excluded; this observation as well as those previously related demonstrate that Grossmann was wrong when he asserted that such a laryngeal picture had never been seen. Thus the single objection to Stage I, rests upon Grossmann's error.

It is against Stage II, (stationary position of the vocal band) and Stage III, (the so-called cadaveric position) that the chief attack is directed, and yet it is not so much the actual clinical results leading to the promulgation of Semon's theory, against which he raises objections, but rather the significance of the clinical phenomena.

Heretofore, as already indicated, it has been accepted that the median position (Stage II), arises from Stage I, if a secondary contraction of the adductors is added to the primary posticus paralysis. The explanation of the laryngeal picture in Stage III, rests upon the previous supposition that a paralysis of the adductor fibres is subjoined to that of the abductor fibres. In consequence, it is thought that the former contraction of the adductor is lost and a sort of middle position appears, so far as it is not modified by the crico-thyroid, the external musculature of the throat, the pharyngeal constrictors and the negative intrapulmonic pressure.

In opposition to this heretofore universally accepted explanation, Grossman sees in Stage II, i. e., vocal bands motionless in the median line, or as it is called, the "adduction position," an expression of a total recurrent paralysis with retained function of the crico-thyroid, and in Stage III, i. e., vocal band motionless in the "cadaveric position," the expression of a total recurrent paralysis with simultaneous loss of function of crico-thyroid. Grossmann bases these opinions upon a number of experiments which were arranged in the following order:—Animals were subjected to morphine-ether narcosis and both superior and inferior laryngeal nerves were exposed and placed within a loose loop. Then the normal width of the glottis during quiet breathing was ascertained by means of Exner's laryngo-

meter. This ingeniously constructed instrument allows to the subjective opinion of the practiced observer so slight a variation that it may be dismissed. Both recurrences were then cut and a new measurement made. A narrowing of the glottis invariably resulted. Then both superior laryngeal nerves were cut and the glottis was for a third time measured. This third test invariably showed a widened glottis when compared with the second measurement.

From these experiments Grossmann drew the conclusions that the vocal band after section of the recurrent does not as formerly believed assume the cadaveric position, by which he understands equilibrium, but rather an adduction position. For, otherwise, he thinks it would be entirely impossible for the width of the glottis after section of the recurrences to be increased by a subsequent section of both superior laryngeal nerves. Therefore Grossmann considers as incorrect the opinion heretofore generally accepted that the vocal band must assume the cadaveric position after paralysis of the muscles innervated by the recurrent, and further that it is incorrect to claim that the median position indicates a still persisting function of the individual muscles supplied by these nerves. For since the median position means nothing more nor less than an adduction position and since this as before shown appears after every section of the recurrent, it is entirely superfluous to seek other reasons for the median position.

These are the facts and conclusions upon which Grossmann's doctrine is built. But, since Semon's theory must be wrong if Grossmann's is correct, in addition to the positive part of his work he presents a second or negative part of which he seeks to prove that all the clinical, pathologico-anatomical and experimental observations upon which Semon based his theory are untenable and undemonstrable.

We first undertook the task of testing the positive part of Grossmann's work, i. e., the animal experiments which are the foundation of his theory. In this, we followed closely in the footsteps of our predecessor. As a rule the animals were placed under morphine-ether narcosis and rarely under ether alone; the mouth was kept open at first with Grossmann's gag, but later we used Cowl's. The width of the glottis was ascertained by Exner's laryngo-

meter and these measurements were verified by Musehold's telescope. In every instance, the measurements were made with the greatest guarantee as to accuracy. The experiments were made on dogs alone, but they were of greatest varieties of age, size, weight and breed. Inasmuch as the results agreed in principle it is well to present here a tabulated resume of the results of ten experiments. It will be observed—we will later return to this fact—that we have, in all instances, taken the smallest width that we could find. If the results of our experiments are compared with Grossmann's, it will be observed that both agree in principle; the normal width of the glottis, in quiet breathing, becomes decreased upon section of the recurrents; if this is followed by section of the superior laryngel nerves, it is increased. However, in spite of the agreement as to principle, there may be observed a difference, which, in our opinion, is not immaterial. The numerical values which we have obtained are greater than Grossmann's. He found as a rule in his dogs after section of the recurrents a width of 1.2 to 1.5 mm. (in 8 out of ten cases.) The narrowest glottis observed by us was 2.1 mm. in width (2

Number	Dog.	Age.	Weight kg.....	Normal width of Glottis in quiet breathing.	After Section of				Narcosis.
					Both Recurrents.	Right Sup. Laryng.	Left Sup. Laryng.	Both Sup. Laryng.	
1	Bulldog.....	6-7 years.	30	v5.5	4.9	5.1	5.5	5.5	Morp. aeth.
2	Spitz.....	2 years.	3-4	v5.5	3.4	3.5	3.8	3.8	Morp. aeth.
3	Pinscher.....	4-5 mos.	3	v5.3	2.1	3.0	3.9	3.9	Morp. aeth.
4	Pinscher.....	4 mos.	2.65	v5.5	2.1	3.0	3.3	3.3	Morp. aeth.
5	Pinscher.....	5-6 mos.	4.7	v5.5	3.4	3.7	4.4	4.4	Morp. aeth.
6	Spitz.....	9 mos.	4.4	5.3	3.5	.....	.....	4.1	Aeth.
7	Teckel.....	2-3 years.	4-5	5.3	4.0	.....	.....	4.9	Aeth.
8	Spitz.....	4 mos.	3.2	4.8	3.0	3.3	3.6	3.6	Morp. aeth.
9	Hound.....	9 mos.	7	v5.5	3.9	.....	.....	4.7	Morp. aeth.
10	Teckel.....	2-3 years.	4-5	5.3	4.0	.....	..	4.9	Aeth.

cases in 20) and this was very small and young animals, in full possession of their temporary teeth and weighing between 2.5 and 3 kg. How this difference is to be explained is not clear without further consideration—perhaps our dogs were older and larger than Grossmann's. However as it was our intention to explain the pathological processes in the human larynx by means of experiments

upon animals, it was thought advisable to use for comparison such animals, which, but slightly differ from the human in the general arrangement of their upper air passages. For as Grossmann properly observed and described, the negative intrapulmonary pressure plays a decided role in the consideration of the present question, and, therefore, it appears to us advisable to provide, at least, in some measure similar conditions for this important factor.

From the fact that bilateral section of the recurrents followed by section of both superior laryngeal nerves results in widening the glottis, Grossmann draws the conclusion that the crico-thyroid belongs to the adductors of the larynx. But, he considers, that it is impossible to believe that the vocal bands will be found in the cadaveric position, i. e., in equilibrium, as long as a viable muscle exerts its adducting power. He considers the non-recognition of this fact the prime flaw in Semon's theory; for so long as the crico-thyroid possesses function—and section of the recurrents exerts no influence upon it—the vocal bands will not be found in the cadaveric position (in equilibrium) but rather in an adduction position.

We have various objections to propose in opposition to these deductions which seem to be properly drawn. First of all, Semon never asserted that the position of the vocal bands which he designated as a clinical cadaveric position, meant the same as an equilibrium. He accepts, and his writings leave no doubt upon this score, this name given by Von Ziemssen only as a short and practical designation of that position of the vocal bands which appears in the usual picture of recurrent paralysis. He made it well understood, however, and this is known by Grossmann, that this position is subject to appreciable variation. There may be some question whether or not the name "cadaveric position" be well chosen; still Semon is not guilty of the error which Grossmann ascribes to him for he does not describe the position called by him clinical cadaveric position as an equilibrium. Both Semon and Katzenstein in their experiments have kept in mind the influence of the crico-thyroid muscle. Moreover at the 59th meeting of the *Naturforscher*, Semon drew attention to the fact that in recurrent paralysis the position assumed by the vocal bands during life was not entirely identical with the post mortem

position because in life the influence of the crico-thyroid comes into play and Katzein says clearly and plainly in the conclusion of his work (Virchow's Arch. Vol. 128, p. 57.) "If I review my experiments I must conclude that the crico-thyroid is the stretcher and the tensor of the vocal bands." It was also known that the contraction of the crico-thyroid produces a narrowing of the vocal cleft. Onodi describes this action fully in his work on the "Innervation of the Larynx," (p. 77) but from his description it appears (and this is the difference between the conception of Semon, Katzenstein and Onodi upon the one side and those of Grossmann upon the other) that the crico-thyroid acts as a tensor and not as an adductor of the vocal bands. We have studied the action of the crico-thyroid in numerous cases in extirpated preparations and in living animals. If both muscles are made to contract simultaneously by means of the faradic current, the anterior bow of the cricoid will approach the thyreoid, the posterior part of the former going downward and backward. Both arytenoids which are firmly united to this by ligaments follow this movement and as the vocal processes, being an essential part of the arytenoid, share in this movement, the vocal bands are stretched and made tense. This stretching of both vocal bands is associated with a narrowing of the vocal cleft which indeed may be somewhat increased by the passive influence of the internal and external thyreo-arytenoids. If the right crico-thyroid alone is made to contract the anterior bow of the cricoid is again directed toward the thyreoid, but in correspondence with the obliquity of the muscle which passes from the middle to the right and upwards, the thyreoid is not directed upward in a rectilinear way, but during its ascent it is drawn somewhat to the right (this deflection towards the side is compensated for by the simultaneous contraction of both muscles). The movement of the anterior bow upwards and to the right corresponds on the posterior surface of the cricoid to a movement towards the left downward and backward which must be followed by both arytenoids, the vocal processes and the vocal bands. Thus by stimulating even one of the crico-thyreoids, both vocal bands are stretched and made tense; but as both (by stimulating the right muscle) are drawn simultaneously from the right to the left, the

right vocal band approaches somewhat nearer the median line while the posterior part of the left is drawn somewhat away from the median line whereby a position approximating parallel vocal bands is obtained.

From these facts we think the conclusion may be drawn that Semon, Katzenstein and Onodi were correct when they described the crico-thyroid as a stretcher and a tensor of the vocal bands. The contraction of this muscle causes by stretching the vocal bands, a narrowing of the glottis, but from this fact it should not be called a simple adductor, for there is always a difference between adduction and stretching; if this view is not accepted it is also illogical for Grossmann to describe as an adduction that position which he thought was caused by the force of this muscle.

If Grossmann imagines that he can conclude by the above deductions that Semon's law is untenable because it is founded upon false premises, the demonstration of his theory is, in our opinion, unsuccessful. In the first place Semon did not at any time identify the clinical cadaveric position with equilibrium and then he did not undervalue the influence which the crico-thyroid exerts upon the position of vocal bands after section of the recurrences. The differences between the assertions of both authors lie more in the fact that Semon ascribed to the crico-thyroid (in connection with the intrapulmonic pressure) the property of exerting a certain influence on the position of the vocal bands after section of the recurrent but he denied with emphasis that this factor was as Grossmann insisted, able to bring about in total recurrent paralysis, the clinical picture of a permanent median position.

This is the kernel of the whole question and this Grossmann thinks he has confirmed by his animal experiments. He thinks that he has proved the statement that we can obtain by section of the recurrences in cats and dogs, a laryngeal picture which is identical with the median position which forms the basis of Semon's theory of *posticus-paralysis*. If this is true, then Grossmann is right and Semon's law, as a law, is untenable.

But is this true? Even if we accept Grossmann's experimental method unconditionally, although this is altogether favorable in his opinion because of the invariable section of the both recurrences, the sud-

denness of the injury and the proportionately narrow larynx of the animals upon which the experiments were made; even if we concern ourselves with the actual results, we believe the statement is true that the position of the vocal bands obtained by section of the recurrences in dogs is not identical with the clinical median position.

The differences are as follows:

I.—The laryngoscopic picture obtained after section of the recurrent in animals does not coincide with the picture heretofore found in posticus paralysis with and without secondary contraction. After unilateral section of the recurrent a true median position has never followed. While Grossmann observed a narrowing of the vocal cleft to 1.2 mm. after section of both recurrences, we have never witnessed so high a degree of narrowing in quiet breathing in a narcotised dog or in one free of narcosis. Animals which are chosen for experiment should not be too young or too small, otherwise the comparisons will be faulty.

Moreover a laryngeal picture which shows a vocal cleft of 3 mm. and over cannot be compared with a glottis of minimum width which it was formerly supposed resulted from posticus paralysis.

These differences are not referable to narcosis, for if the animals are examined while awake and if the vocal bands of the terrified animals are observed pressed together in the median line for ever so long a time, this median position will be seen broken from time to time by deep inspirations in which the glottis approaches the width found under narcosis—about 3 mm., which does not occur in the clinical median position recognized in posticus paralysis.

The laryngeal picture which has heretofore been recognized in posticus paralysis without contracture (Stage I) and whose existence was improperly denied by Grossmann, especially when unilateral, is so totally different from that of unilateral paralysis of the recurrent that a comparison between the two cannot be brought into consideration.

II.—The whole conduct, one might say, the clinical conduct, of animals in which both recurrences have been cut always presupposes that half-grown animals are used differing entirely from the patients whose laryngeal picture is explained by Semon as bilateral posticus paralysis and by Grossmann as bilateral recurrent paralysis. In our

patients we always find the highest degree of dyspnea; in dogs one would expect a still more violent dyspnoea inasmuch as the injury, differing from the disease in men, occurs suddenly. Instead of this, we find that the animals operated upon, move around, eat, drink and play as soon as the narcosis disappears, without any perceptible sign of dyspnea. We have seen some animals which have been subjected to the bilateral operation, suffer from noisy respiration for 3 to 5 minutes, but they did not exhibit such struggles as are present in men with the bilateral median position. Furthermore, in a very short time the breathing of the animals again became quiet and normal.

III.—According to Grossmann's own statement (p. 352) confirmed by Wagner and Grabower, the adduction or stretching of the vocal bands which is still to be observed after section of the recurrent disappears soon, i. e. within a few days at the latest. In decided opposition to this is the observation of numerous writers, who maintain that the median position, heretofore considered a bilateral posticus paralysis persists for months and years. This opposition cannot be removed by Grossmann's statement that dogs, even a year after section of the recurrent, when in fear or in pain, may show a high degree of narrowing of the vocal cleft. Grossmann has himself observed—and we can completely confirm his statement—that this same narrowing occurs after section of all the nerves of the larynx.

IV.—Semon based his theory upon numerous clinical observations some of which (and these include the strongest supports of Semon's law) may be supplemented by pathologico-anatomical investigation. In these cases the median position was found which remained unchanged for months and years. Section demonstrated a clear atrophy and degeneration of the postici while all the other muscles, as categorically shown, were normal.

Grossmann remarked that in these cases he deemed it improbable that any muscle would show an entirely normal appearance after a contracture of some years' duration. This objection, of which we shall later speak, may be debatable, and whoever deals with the question will be compelled to consider whether or not Semon's law is correct. At present we are not discussing Semon's theory, but Grossmann's and for this those cases are fatal.

For it is impossible to take as Grossmaann does, a total recurrent paralysis as an anatomical substratum for the clinical condition—median position—if the pathologico-anatomical investigation shows that only the postici have degenerated while all the adductor muscles which are innervated by the same totally paralyzed nerve, show a normal aspect.

To review the results of our investigations, we must conclude that Grossmann's arguments are not sufficient to prove his hypothesis, for

1.—The laryngel picture which according to his own statements establishes an uncomplicated posticus paralysis—this laryngeal picture which he insists has never been seen—has actually and repeatedly been seen.

2.—Grossmann's animal experiments do not fit laryngoscopically or clinically the conditions found in men, with which he wishes to identify them.

3.—The pathologico-anatomical facts which have been established by several independent writers can not be brought into agreement with Grossmann's theory.

The above work was carried out in the Thierärzteichen Hochschule of Berlin. We express our most grateful thanks to Prof. H. Munk who gave us such excellent assistance in our experiments.

(To be continued.)

ON THE CAUSE OF STUTTERING.*

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(Abstracted and Translated by GEORGE MORGENTHAU, Chicago.)

Since Denmark introduced public courses for the treatment of stuttering, in October, 1895, I have had the opportunity, as medical member of the supervising committee, carefully to examine quite a large number of stutterers. During these examinations I devoted especial attention to the etiology of stuttering; and as the results seem to me to be not devoid of interest, I have determined to publish them. Altogether, they concern two hundred children and young people, aged from six to twenty-five years. I examined every one personally and in nearly two-thirds of the whole number I secured historical data by enquiries made personally of the nearest relatives. Data of the other third, living outside of Copenhagen, were supplied by colleagues who most conscientiously filled out the question blanks which are sent to every stutterer non-resident in Copenhagen who applies for admission to the government training courses. (A report on the arrangement of these question blanks as well as on the courses in general is to be found in the *Monatsschrift fuer die gesammte Sprachheilkunde*, 1896, page 339-342.)

An attempt was made to divide the causes of stuttering, in the conventional way, into remote and immediate. Among the remote (predisposing) causes will be mentioned; (a) the influence of sex, (b) the influence of age, (c) heredity; furthermore, (d) certain diseases of the nose, naso-pharynx and pharynx, (e) certain constitutional diseases, and lastly, (f) certain other remote causes. Among the immediate, there must be discussed, (g) the so-called moral contagion, (h) the acute infectious diseases, (i) injury, and (k) certain physical influences.

(a) *Sex*.—It is an old experience that many more stut-

*Fraenkel's Archiv., VIII, 294.

terers are males than females. H. Gutzmann (*Die Störung der Sprache*, page 105) found that of quite a large number of stuttering school children, seventy per cent. were boys; of adult stutterers, as many as ninety per cent. were men. Of our 200 stutterers, among whom there were also young people up to the age of twenty-five in addition to the children who were greatly in the majority, 171, that is over eighty-five per cent., were males. It must, however, be presumed that, as a result of various conditions, female applicants are fewer; as they are not, for instance, hampered in housework by this infirmity, etc.

(b) *Age*.—There is no doubt that certain periods dispose to stuttering. They are (1) the second year of life and partially, the two succeeding ones; (2) the age from six to eight years, and (3) the age of puberty.

1 The importance of, especially, the first of these periods is shown in tabulating the beginning of stuttering in these 200 individuals:

In 33 stuttering first began in the 2d year of life.

“ 20	“	“	“	“	3d	“	“
“ 31	“	“	“	“	4th	“	“
“ 29	“	“	“	“	5th	“	“
“ 25	“	“	“	“	6th	“	“
“ 15	“	“	“	“	7th	“	“
“ 19	“	“	“	“	8th	“	“
“ 17	“	“	“	“	after the 8th year of life.		
“ 11	nothing could be determined.						

It follows that stuttering began in the second to fourth in nearly half of these concerning whom information could be obtained. The importance which the second year of life and the next following ones have in the development of stuttering depends, undoubtedly, on the fact that the child begins to speak at that age. It is even greater than the above review seems to indicate; because, as a matter of fact, considerable time elapses before parents notice that their children stutter. The influence of the beginning of speaking is further demonstrated by the fact that the large majority of the stutterers in whom the disease showed in the third and fourth year began notably late to speak. It was further found that a remarkably large number of stutterers began to speak very late, for

about one-half of those regarding whom information was obtained, began to learn only after completing the second year; and of about one-fourth of these last it was proven that they began to speak only after completing the third year. The disturbance of speech, however, and delayed speech are, probably, co-ordinate phenomena, due to the same remoter causes.

The second period which is of importance in regard to the development of stuttering is the time from the seventh to the eighth year. The influence of second dentition is shown in the above resume, according to which 34 stutters, *i. e.* 17 per cent. developed stuttering in that period. The influence of the first school years on the development of stuttering has been observed in these Danish courses. That they certainly do influence already existing stuttering is evidenced by the statement that in more than half the disturbance was increased after beginning to attend school. These unfavorable influences, incidental to the first years at school, are, probably, essentially psychical (*i. e.* unfamiliar surroundings, more serious treatment than at home, association with stuttering schoolmates, etc.).

It is not surprising that the age of puberty is of moment in the development of stuttering; it can also be easily explained why the disease should often grow worse during this time, as the nervous system is very susceptible to influences at this period. As children constitute the largest portion of persons examined, our results have no bearing on this question. Finally the influence of age is shown by the fact that stuttering very rarely begins after the close of the period of puberty, while it is often overcome with advancing age.

(c) *Heredity*.—Although heredity is universally considered one of the remoter causes of stuttering it has not received the attention it deserves. Learning from my experience in investigating deaf-mutism, I have devoted attention not only to (1) stuttering in the relatives, but also to (2) mental diseases, (3) idiocy, (4) epilepsy and other spasmodic conditions, (5) chorea, (6) hysteria, nervousness, neurasthenia and similar states, (7) asthma, and (8) deaf-mutism.

1. *Stuttering in relatives of the stutters*.—Not less than

85 (among them, however, six pairs were brothers and sisters), *i. e.* 42 per cent. had relatives who stutter or did stutter.

The father stutters - - - - -	17
“ “ and brothers (or sisters) stutter -	8
“ “ “ “ and mothers “ -	1
“ “ “ “ “ other relatives stutter	4
The mother stutters - - - - -	8
“ “ and brothers (or sisters) stutter	1
“ brothers (or sisters) stutter - - -	25
“ “ “ and other relatives stutter	6
Other relatives stutter - - - - -	14

The total number of stuttering relatives was 124; of these 62, *i. e.*, half, were brothers or sisters of the pupils in the course; and 31, *i. e.*, one-fourth were their fathers, As the sum total of the fathers was 194, it appears that 16 per cent. of their fathers either were stutterers or had stuttered. In addition, the pronunciation of some of the fathers was faulty, and among the brothers (and sisters) were some whose speech had developed notably tardily. Of the 192 marriages there were 43 from which either two or more children issued who stuttered or had stuttered; the total number of these children was 106. The figures are large enough to exclude the possibility of chance. In many cases, however, in which the parents of the children stuttered at the time the children developed the defect of speech, or in which brothers or sisters or relatives with whom the children associated stuttered, psychical contagion may be probable. But it must be remarked that eleven of the fathers stuttered only in childhood, and that eight of the relatives did not associate with the children, It must, then, be admitted that heredity or an inherited predisposition, as it might be termed, influenced the development of the disease.

3. Occurrence of mental diseases in relatives of the stutters.

In 15 of the relatives, *i. e.*, in 7 per cent., mental diseases were found in 18 individuals altogether. Of the 194 fathers of the pupils, 5, *i. e.*, 2.6 per cent., were afflicted with mental diseases. This number must be pronounced remarkably large, because mental diseases do not exceed 0.2 per cent. in Denmark, in men of the age of most of the

fathers, from 20 to 40 years. For the sake of comparison, I may state that, in investigating the frequency of mental diseases in the fathers of deaf-mutes, I found the percentage to be 0.8 per cent.; and the importance of these diseases in the etiology of deaf-mutism is universally acknowledged.

4. Occurrence of idiocy in the relatives of the stutters:

Idiocy does not seem to be frequent. Only 5 of our pupils (among them brothers and sisters) had idiotic relatives. One of these cases was of great interest, since I was enabled to secure the accompanying pedigree, which illustrates most forcibly the relation between stuttering and various nervous conditions.

FAMILY TREE

CHRISTIAN J.

(52 years old; died of pulmonary phthisis.

CAROLINE B.

(76 years old; died of cerebral disease.

1	2	3	4	5	6	7	8	9	10	11	12
Julia, 28; healthy.	Emily, 44; nervous.	Will., 44; died at sea.	42; nervous; died at sea.	Louise, 38; died of scarlet fever.	Christina, 38; still-living.	Still-born.	Marius Girl, 32; still-living.	Girl, 29; died after birth.	Betta; Mary; still-born.	29; still-living.	Still-born.
			married to Henry F.								
1	2	3	4	5	6	7	8	9	10	11	12
Amelia, 4 mos; died of spasms.	Amelia, 11; weak; died of epileps.	Henry, 11; weak; died of epileps.	Angus, 9; imbecile; died of epileps.	Eliza, 9; died of tuberc.	Erk., 5; suffers from epileps.	Ida, 3; still-living.					

5. Occurrence of epilepsy and spasmodic forms in the relatives of the stutters:

Thirty-two stutters (among them two pairs of sisters

and brothers), *i. e.*, 16 per cent., were found to have altogether 36 relatives who were or had been afflicted with periodic spasms. In one case the spasm was caused by alcohol; in 5 cases the spasms were probably of hysterical origin. Thirteen cases were undoubtedly epileptic; no information could be obtained concerning the others. Considering that epilepsy and similar spasmodic forms were found nearly twice as often in the relatives of stutters as in those of deaf-mutes (see Mygind, *Deaf-Mutism*, page 70), and that they are recognized as important factors in the etiology of deaf-mutism, the percentage must be called large. In addition it was proven that 22 stutters (among them 20 other than the 23 stutters mentioned above as having epileptic relatives) lost (altogether 30) brothers or sisters who had succumbed to diseases termed "spasms," fits, convulsions, etc.

The apparent etiological connection between epilepsy and similar spasms and convulsions causing death in children on the other hand, and stuttering on the other, need not surprise since voluntary spasm-like motions are essential to stuttering.

Chorea was traced only (in three cases) in the relatives of 3 pupils. It must be remarked that my attention was not directed to this disease in the beginning, and that, therefore, it was not mentioned specifically among the nervous diseases on the question blank.

7. Occurrence of nervousness, neurasthenia, hysteria, etc., in the relatives of the stutters.

This group was made to include also cases of "weak nerves," etc., and those in which there was the most certain stigma of nervousness, megrim. Although these various conditions are met with so often, the frequency of their occurrence in the relatives of stutters is noteworthy: Fifty-eight stutters (among them no brothers or sisters), *i. e.*, 29 per cent. of the pupils had relatives (altogether 13) thus afflicted; especially was that so with their mothers, of whom 46, *i. e.*, nearly one-fourth per cent., were nervous. Megrim was found in many instances, which included all cases of periodic severe headache accompanied by nausea and vomiting, without inquiry as to the localization of the pain in one side, only, of the head (true hemicrania). Not less than 38 pupils had

(altogether 47) relatives with megrim, among whom 32 mothers (*i. e.* 17 per cent. of all their mothers), three fathers, and the other relative. Finally, 14 stutterers had 12 mothers and 4 mothers' sisters with other forms of headache which appeared neither periodically nor accompanied by vomiting. These nervous disorders must thus be considered important remoter (disposing) causes of stuttering.

8. Occurrence of asthma in the relatives of the stutterers.

"True or nervous" asthma is a spasmodic neurosis confined to the respiratory organs. Fifteen stutterers, *i. e.*, 7 per cent.—among them two pairs of brothers—had (altogether 14,) relatives thus afflicted. Of these, seven were the fathers of pupils. As the disease is not so common, the percentage (3 per cent.) of their fathers points to its etiological influence.

9. Occurrence of deaf-mutism in the relatives of the stutterers.

Ucherman has confirmed—for Norway—the author's statement as to the etiological relation between deaf-mutism and stuttering and other speech defects. Deaf-mutism, however, being a rather uncommon abnormality, it is not surprising that but three stutterers had deaf-mute relatives.

(d) Diseases of the nose, naso-pharynx and pharynx:

Rhinitis chronica hypertrophica in 42 cases, *i. e.* 21 per cent.

" " atrophica	2	"	"	"
Polypi-nasi	1	"	"	"
Adenoid vegetations	78	"	"	39 "
Rhino-pharyngitis atrophica	8	"	"	"
Pharyngitis chronica :	32	"	"	"
Hypertrophica tonsillarum	23	"	"	"

Chronic hypertrophic rhinitis in a decided form is a little more frequent in stutterers than in other children. Not so with chronic (and granular) pharyngitis.

Hyperplastic tonsils are somewhat more common. Although only marked adenoids were selected, the great percentage shows how often they are to be found in stutterers. I agree with Gutzmann that they dispose to stut-

tering and have, therefore, mentioned them under the heading of remote causes. Removal of the growths does not cure the stuttering, but greatly aids subsequent treatment. Sometimes it improves speech decidedly. One, a girl of 12, did not have to attend the course after the operation; on following directions at home for some weeks she was cured.

(e) Rachitis and scrofulosis.

As only 15 of the pupils had had rickets in early childhood, and only 4 showed signs of scrofulosis, these diseases do not seem of moment as remoter causes. But to be sure, in some cases they may so weaken the patients as to make them more susceptible to the influence which brings on stuttering.

(f) Other remote causes.

Among the stuttering children were many of a quiet temperament; some even phlegmatic and indolent. This does not agree with Gutzmann's opinion, that most stutterers are vivacious, excitable and susceptible to external influences. Perhaps the difference is due to national peculiarities, and the fact that so many of the pupils lived in the country. Alcoholism was discovered in the relatives of 10 of the stutterers; in 7 cases the father was addicted to alcohol. The question of its influence is left open. The percentage of 20 per cent. of pulmonary tuberculosis in relatives (of 41 pupils,) is not great. Partial deafness was found in 14 stutterers, *i. e.*, 7 per cent., always the result of middle ear suppuration. Deformity of the vocal organs was seen in 1 case (hare-lip). Conspicuous lack of intelligence was noticed in 20 stutterers, *i. e.*, 10 per cent. Although mentally weak children were excluded from the courses, one child was an idiot. I am inclined to find a relationship between impaired intelligence and stuttering.

Immediate (occasional) causes seem of much less etiological importance than remoter ones; they were stated in only 58 cases, *i. e.*, 29 per cent.

(g) Psychical infection (contagium morale).

In 27 cases (13 per cent.) stuttering was positively ascribed to associating with stutterers; some others acquired

the defect, probably in this manner. In 3 cases it was said to be due to the influence of the father, in 10 cases to that of school and playmates, and in the other cases to that of brothers or sisters. It is surprising that stuttering is not more often traced to association with stutterers. In half of the pupils whose defect was produced by psychical infection, the nervous diseases named above were found present in relatives. Probably, therefore, the hereditary disposition is an additional etiological factor.

(h) Acute infectious disease.

Measles - - -	6 cases.
Pneumonia - -	3 "
Scarlatina - -	4 "
Whooping cough	2 "
Diphtheria - -	2 "
Mumps - - -	1 "
Cerebro-spinal meningitis	1 case.
19 cases = 9 per cent.	

It is not so much the kind and character of the infectious disease which leads to stuttering, as its intensity, combined with an existing disposition, inherited from the parents (of the 19 cases there were 12 such).

Injury to the head was noted as a cause in 4 cases, *i. e.*, 2 per cent.; while Gutzmann places the percentage at $11\frac{1}{3}$.

(k) Psychical influences are fright (1), timidity during the early school days; (4) change from the German to the Danish language (2 brothers), and removal from the country to the city (1).

We now deal with various other conditions which have some bearing on the etiology of stuttering, and point with much positiveness to a relation between this infirmity and certain hereditary nervous states. Of 162 stutterers examined in this regard, 18—*i. e.*, 11 per cent.—were left-handed "mirror-writers." Gutzmann, who found but 3 per cent., lays great stress on this phenomenon, pronouncing it of unfavorable prognostic influence, a sign of psychical inferiority. I am not as yet in position to judge of its value as a prognostic factor, but must say that it was not possible to discover any impairment of intelli-

gence in some of these stutterers. Five out of 200 stutterers were affected with nocturnal enuresis (2 per cent).

As the figure is not small, and the trouble a decided neurosis, it is worthy of note. It is a singular fact that 1194 children resulted from 188 of the 194 alliances from which our stutterers sprung—*i. e.*, an average of 6.4 from each; of 4 marriages no report was made, and 2 alliances were illegitimate. The marriages were, therefore, very *prolific*. They are about equal to those in which deaf mutes were born. Ucherman denies—surely correctly so—any causal relation between the number of the offspring and of deaf mutes; he considers the relations co-ordinate and likely to appear in all hereditary diseases, as existing hereditary conditions are apt to appear in large families. To sum up, *stuttering must be considered a decided neurosis, related in its etiology to the so-called neuropathies of degeneration; in which must be included epilepsy, hysteria, neurasthenia, chorea and others, as well as certain forms of mental diseases. This relation is evidenced especially by the fact that these diseases occur as frequently in the relatives of the stutterers; that stutterers possess some of the stigmata of these neuropathies: that stuttering, similar to most of these neuropathies, is associated with one sex and a certain period of age; that the importance of the immediate causes is far less than that of the remoter (predisposing) causes; and that, finally, stuttering is also characterized by marked functional disturbances of the nervous system, while the pathologic-anatomic changes are unknown.* While these conclusions are not all now, as several, especially French, neurologists mention stuttering (as well as other defects of speech,) among the stigmata of degenerative neuropathies, I do not know of any material which attempts to advance so many facts to their correctness. It must, however, be emphasized on the other hand that *it is unjustifiable to call every instances of stuttering an expression of a neuropathic family disposition or degeneration.* I have seen many stutterers who belong to families in which no hereditary nervous affections could be traced; besides it is impossible, in many stutterers, to find any one of these stigmata.

As other signs which might be considered stigmata of degeneration I may add: Spasm of doubtful nature (1 case), hemicrania (3), conspicuously large head (3), conspicuously little head (2), a symmetrical skull (1), congenital blindness (2).

The majority of our pupils looked perfectly well,

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINO-
LOGICAL AND LARYNGOLOGICAL
LITERATURE.

I.—EAR.

Foreign Body in the Ear and Nose.

534. BARRET. (*Journ. Amer. Med. Assn.*, Aug. 13, 1898.) A description of the routine method of removing foreign bodies from the nose and ear. *Scheppegrell.*

Statistical Report of the Ear Patients Treated During the Years 1893-1896 Inclusive.

535. BEZOLD, Munich. (*Archives of Otolaryngology*, Vol. XXVII, No. 4.) There were treated 5327 ear patients representing 6056 ear diseases.

As to the sexes 56.2 per cent. were male, and 43.8 per cent female.

The various parts of the ear affected were as follows: External ear with tympanic membrane, 22.8 per cent.; middle ear 63.2 per cent.; inner ear 14 per cent.; sclerosis in 66.6 per cent. and otalgia in 64 per cent. of cases affect the female sex. Characteristic peculiarities of which the author has before remarked.

Whereas a number of diseases of the inner ear are either congenital or acquired in childhood through infectious diseases, at least in the vast majority of cases the "subjective noises with normal hearing" (2.3 per cent. children, 97.7 per cent. adults), as well as the "acquired nervous hardness of hearing" (2.6 per cent. children, 97.4 per cent. adult), are conditions found almost exclusively in adults.

The cases of "hardness of hearing, deaf-mutism after meningitis" were in 95 per cent. of the patients bilateral, whereas when following "mumps" 77.8 per cent. were unilateral.

In the cases of "nervous hardness of hearing" 69.4 per cent. occurred in males.

Deafness for speech may be brought about not merely

by changes which are confined exclusively to the nervous apparatus, but also by the final stages of the processes which first cause ankylosis of the base of the stapes.

I. Among 332 cases of acute suppuration of the middle ear in private practice:

	Per cent.
There were healed with closure of the Mt. perforation.....	73.2
There were improved, the secretion ceased but the perforation persisted.....	2.4
The secretion persisted in spite of prolonged treatment.....	1.2

II. Among 870 cases of chronic suppuration of the middle ear:

	Per cent.
There were healed with closure of the Mt. perforation.....	2.5
There were improved, the secretion ceased but the perforation persisted.....	52.3
The secretion persisted in spite of prolonged treatment.....	14.2

Of these acute and chronic cases in private practice there were 5 deaths making a mortality in acute cases of 0.9 per cent. and in chronic suppuration 0.2 per cent.

Campbell.

Analysis of Thesis. Study of Noises in the Ears.

536. BOUCHARD. (*Rev. hebdom. de Laryngol. d'Otol. et de Rhinol*, No. 40 Oct. 1, 1898.) Historically interesting is the fact that in 1720 Guyot made injections into the eustachian tube. Dienert recognized perforations of the drum membrane in 1748. With the exception of a few extremely unsafe speculations there is nothing that cannot be found in any modern text book.

Holinger.

Care of Ears in Early Life.

537. BRYANT, D. C. (*Western Med. Journal* July, 1898.) The care of the ears in early life includes proper attention to the nasal passages and the pharynx. In all the diseases of early life prone to affect the mucous tract of the nose, throat and middle ear, the latter should be carefully watched and receive proper attention as soon as any symptoms of implication of that organ becomes manifest.

Scheppegrell.

Sarcoma of the Internal Auditory Canal.

538. DRUAULT. (*Annales des malad. de l'Oreille du Lar., du Nez. et du Phar.*, No. 8, August, 1898.) A very care-

fully observed case of a rare disease in which the main link, the post-mortem, is not missing. A girl of 17 enters the hospital September 25, 1897. Nothing special can be found in her history. She was nursed up to her 9th year. When 10½ years old she had nervous spells with one sided facial paralysis, deafness and severe headache. The paralysis improved in the next six years during which time she had electric treatments. November, 1896, she suffered from headaches with vomiting recurring every 15 to 20 days. Since June, 1897, she notices double vision. The present condition is such that a brain tumor is immediately thought of. The headaches are worse from midnight till morning. Almost daily she had vomiting and constipation. She suffers from right sided paralysis of the face, the arm and the leg, and from aphasia. The patellar reflex is normal, but the sensibility is diminished. The senses of taste and smell are normal. In both eyes choked disc is found. The right ear is almost totally deaf, the aspect of the tympanic membrane however is normal. Up to October 3rd antisyphilitic treatment was administered without success. Then a trephine opening was made a little back of Rolando's fissure. The meninges were normal; the lateral ventricles were punctured and some clear fluid was aspirated. After this no improvement was noticeable. November 12th over the old trephine scar a vesicle of 1½ cm. in height was noticed. November 27th patient died. The post-mortem proved a communication of the vesicle through the softened brain tissue with the lateral ventricles. The hemispheres were normal. The right cerebellum was pressed by a sarcoma of the size of a goose egg. It is not adherent to the cerebellum, but to the bone and enters into the internal auditory canal with a prolongation of 1 cm. in diameter. In the internal meatus the tumor is in connection with the pia of the auditory nerve, but does not enter into the labyrinth nor the Fallopian duct. The middle ear and mastoid process are normal. The microscopical examination shows an angiolitic sarcoma. The case is important for its slow development, the diagnosis of its seat on account of the question of a radical operation.

Holinger.

Mechanical Vibrations Applied to the Dorsal Spine as Treatment for Sclerosis of the Ear.

539. DUNDAS-GRANT, London. (*Rev. hebdom. de Laryngol. d'Otol., et de Rhinol.*, No. 35, Aug. 27, 1898.) Cases of deafness without any relief from catheterization of the Eustachian tube nor any other treatment are very frequent. The cause is some form of an arthritis of the stapedio-vestibular joint. Bezold finds ankylosis of the stapes. Politzer considers the primary seat to be the labyrinth. The author has discovered rheumatism, gout or syphilis as causes. To his wife the author has to thank for a new suggestion. She noticed that in paracusis Willisii it is more the shaking than the noise which improved the hearing, because the improvement was just as marked on the bicycle as in the cars. On this the author bases a treatment with vibrations, which he says gave good results. Two histories are added to prove these results.

Holinger.

Acute Inflammation of the Middle Ear.

540 ELLETT, E. C. (*Columbus Med. Journ.*, August 16, 1898.) A review of the etiology and pathology of inflammation of the middle ear. In the early stage the Politzer bag is useful, but the pharynx should first be sterilized to avoid the conveyance of suppurative material into the Eustachian tube. After spontaneous or artificial rupture of the drum, the Politzer air-bag should be used.

Scheppegrell.

Hygiene of the Ear.

541, EWING, F. C. (*Dietetic and Hygienic Gazette*, May, 1898,) Two interesting lectures on the subject of the title, including a reference to the anatomy and physiology of the organs of hearing.

Scheppegrell.

Sound Produced in the Perforated Drumhead.

542. FARNS, RAFAEL (*El Siglo Medico*, Madrid, Oct. 2, 1898, No. 2336), reports a phenomenon which he thinks has hitherto escaped record, rather from oversight on the observer's part, than from lack of frequency in occurrence. He refers to the sound (audible to the physician) produced in a perforated drumhead accompanying the breathing. In one case he heard this sound in one ear when the patient was awake and upright, while in the

other it could be perceived only when he was lying down and breathing quietly. The perforations were due to preceding pharyngeal inflammations, and the sounds disappeared as the disease was cured and the perforations closed.

Hale.

On the Functional Examination of the Ear, with an Exhibition of Bezold's Continuous Tone Series.

543. KNAPP, New York. (*Archives of Otology*, Vol. XXVII, No. 4.) A complete functional examination of the ear has to determine the three qualities of sound: intensity, pitch and clang-tint.

Intensity of sound determines the sharpness of hearing. The watch and acoumeters with ill-defined sounds, not so easily analyzable as those of tones, have lost credit in favor of the human voice; yet, they are serviceable on account of their convenience, and are likely to remain in use.

The human voice is by common consent, our best means of testing hearing.

Regarding normal hearing distance, of whispering or ordinary voice, this is largely a personal matter. It depends on the strength of the aurist's voice and the conditions of his surroundings.

One must verify his standard, from time to time, because just as a watch, in the course of time, has a weaker tick by smoothening of its gear, so a man's voice is apt to get weaker with advancing years.

In the use of the test words the author is accustomed to take them from the most diversified objects so as to give patients no clew by guessing.

For the detection of absolute one-sided deafness, the author uses three tests:

1. Dennert's test. The patient closes the better ear, by pressing the moistened end of the index finger snugly into the canal. The other ear is tested with an acoumeter and the voice. The patient is then told to stop also the bad ear and keep both closed. If the acoumeter and voice are not heard at about the same distance one can infer that the bad ear does not add anything to the hearing power of the patient.

2. Weber's test.

3. Knapp's test. If we move a tuning fork of medium

pitch, say C', up and down before the good ear, the patient hears it sound with puff-like enforcements when it passes before the meatus of the good ear; moving it then up and down before the other, deaf ear, he will hear it evenly or almost evenly; an intelligent person may hear also slight puffs when the fork passes before the meatus of the deaf ear. The reason of this is that the sound waves, reaching the good ear through the head, strike it more directly and with greater force when passing through the canal of the deaf ear then through the skull. This can be proven if we let the patient stop the meatus of the bad ear. He then hears the fork no longer in puffs, but evenly.

The range of audition of the human ear extends from subcontra C (C'') up to a⁸ comprising almost 12 octaves.

Bezold has succeeded in devising and having made in most accurate manner a *continuous tone series* by which two very remarkable facts have been brought to light.

1. The preservation of single and connected tones and series or groups of tones in the hearing organs of deaf mutes (tone-islets). He found out that the preservation of an acoustic range from b¹-g² was the best field for the cultivation of speech in deaf-mutes.

2. In labyrinthless ears, the hearing power left is reflected (a faint photograph) from the other ear.

When impairment of hearing is present the tuning-fork tests are indispensable. Rinne's test with a fork of middle pitch from c to a' is sufficient in simple cases; in complicated cases be they catarrhal, adhesive or suppurative Rinne's test is to be supplemented by Schwabach's (measuring the duration of sound) and Weber's tests.

In advanced cases one should examine the range of audition as to pitch, especially both ends of the scale with three forks and a lower C-A, a middle c'-a', and a high one c⁴.

For one-sided deafness Dennert's, Weber's and Knapp's tests are sufficient, but in the gravest cases with tone defects, Bezold's continuous tone series alone will make a thorough examination possible.

Campbell.

The Lesions of the Ears are Often Determining Causes of Agoraphobia.

544. LANNOIS AND TONNIER. (*Annales des malad. de l'Oreille du Lar. du Nez. et du Phar.*, No. 10, October, 1898.) Agoraphobia is a nervous condition of anxious impressions, or even fright, which overcomes a person in presence of large spaces. The author gives 10 very interesting observations, and draws the following conclusions:

1. Agoraphobia is not a primary disease, but appears only on a neurotic basis. This basis may be nervous excitement or nervous degeneration.

2. The cause which produces agoraphobia rather than other possible phobias in a great number of cases, is some disease of the ear which is connected with dizziness and noises in the ear.

3. If the cause of agoraphobia was a great fright, which was not connected with vertigo (sight of an epileptic fit, a cold, colic, or an hysterical attack), the lesions of the ears are very often the cause of the persistence of agoraphobia.

Holinger.

Prompt Attention to Earaches in Infancy and Early Childhood

545. LAUTENBACH, L. J. (*Jour. Am. Med. Ass'n*, Oct. 29, 1898.) Earache may be a symptom of some important condition, and treating it by palliatives, as is often done, is unscientific and dangerous. The lack of appreciation of the possibility of danger in this condition is illustrated by the fact that Dr. Lautenbach was invited to see a case with a physician who stated that the case was not urgent, and that the following day was sufficiently early. Before the time appointed had arrived the child had died, probably from cerebral involvement. If these cases were promptly and properly attended to, it would not only decrease the danger of complications, but also diminish the number of deaths in our midst.

Scheppegrell.

The Use of the Electric Drill in Operations of the Mastoid and Temporal Bone.

546. LOMBARD. (*Annales des Malad. de l'Oreille du Lar. du Nez. et du Phar.*, No. 9, September, 1898, The author

finds these advantages of the electric drill over the gouge and mallet:

1. There is much more precision.
2. There is no danger of hurting the soft organs, because they move out of the way of the drill as soon as it touches them.
3. The shock is avoided.
4. The wound is smooth.
5. The operation is done quicker.
6. Even if the bone is eburnated, the elastic drill does the work easier. These facts are illustrated by the history of one operation.

Holinger.

The Cleaning Out of the Petro-mastoid. New Surgical Treatment of Chronic Dry Inflammation of the Middle Ear.

547. ARISTIDE MALAERBE. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 32, August 6, 1898.) Some physiological considerations of the tympano-mastoid apparatus, and indications for operation (read before the French Soc. of Laryngology, May, '98.)

The author brings out eight points:

1. The cleaning out of the petro-mastoid ought to be tried in old persons.
2. An early operation will have a great advantage, because the lesions are still limited.
3. The perception of the tuning-fork by air conduction does not give any reliable results. But we must not operate in persons who cannot hear a tuning-fork or the acrometer by bone conduction.
4. The lowering of perception of the higher tones by air conduction is usually a bad sign.
5. One should operate upon one ear only at a time.
6. We should always operate on the worse ear, because the improvement of the worse generally brings about an equal effect upon the better ear.
7. The improvement is usually in the higher parts of the perceptible tones; the lower sounds are not influenced.
8. Subjective noises disappear, or diminish progressively after intervention.

Holinger.

**About Closing Perforations of the Tympanic Membrane
with Trichloroacetic Acid.**

548. MIOT. (*Rev. Hebdom. de Laryngol, d' Otol. et de Roinol.*, No. 34, August 20, '98.) Read before the French Laryngol. Soc., May, '98.

The author ascribes this treatment to Okounew.

Of 51 cauterizations with trichloroacetic acid 9 were successful. This result was due to the careful selection of cases. All very large perforations, and those of Shrapnell's membrane, were excluded. The result as to hearing was an equally good one, only twice was an increase of the deafness noticed through formation of synechia. The trichloroacetic acid is, therefore, highly recommended. The galvano-cautery or the radial incisions are reserved for the excision of perforations with much indurated borders.

Holinger.

Influenza in Its Relations to the Middle Ear.

549. NATHAN, JOSEPH. (*Wurzburg Inaugural Thesis*, 1897.) Only the first two forms of influenza (there being three recognized types, the catarrhal, the nervous and gastro-enteritic,) seem to involve the ear. Influenza otitis appears either (1) in the beginning of the attack, or, at least, before its subsidence—the *early form*: or (2) after the influenza seems to have run its course, sometimes 1 to 2 weeks later—the *late form*. Most authors agree that only the early forms are produced by the influenza bacillus itself; the late forms being ascribed to a secondary infection by contact from the naso-pharynx, analagous to the secondary affections in other infectious diseases, as measles, scarlatina, pneumonia. The *early forms*, which represent the pure influenza type (Haug), being a localization of the influenza process in the ear, are characterized by a *hemorrhagic* inflammation. These hemorrhages, to be sure, do not occur in all cases, rather only in a proportionately small number; but hemorrhagic otitis media is met with undoubtedly greater frequency in influenza than in other infectious diseases and in otitis media genuina.

These early forms attack mostly persons in the middle and late periods of life; children enjoy a certain immunity. Before the other influenza symptoms have subsided, often on the first or second day, the patient complains of

severe boring pains in the depths of the ear. This, in some instances, is preceded by more or less severe epistaxis. The pains increase rapidly, and, within a few hours, reach an intensity which is not observed in middle ear inflammation from other causes; they radiate to the neighboring parts of the face and neck, and even to the upper extremity of the same side, and to the chest. The temperature, which was somewhat elevated before, rises, within a few hours, to 41° C. and more; occasionally accompanied by severe chills.

Besides, there are often tormenting subjective noises, and extreme sensitiveness to external noises. Hearing rapidly diminishes, often to complete deafness of the affected ear. The objective appearance in hemorrhagic inflammation is as follows: The drum membrane shows, on its whole surface, a deep blue-red to blue-black discoloration; it bulges, its normal contours have completely disappeared. In other cases the whole surface appears greatly congested, with deep blue-red to blue-black hemorrhagic blebs of the size of a pin-head to that of a pea; usually one larger and several smaller blebs.

More rarely there is a hemorrhagic myringitis without marked implication of the middle ear. The blebs may involve the external canal, also. After a few hours, usually, a perforation occurs with secretion tinged more or less with blood. In rare cases the hemorrhage may be severe, lasting even several hours. There is no location of the perforation which might be called characteristic. The cases in which the secretion is purulent from the beginning are quite severe, because the mastoid process often becomes involved.

Koerner reported three cases of peculiar hemorrhagic otitis media in which, several days after perforation had formed or paracentesis was made, several rings of brownish-red color appeared in place of the hemorrhages. The drum membrane reminded one of a panther's skin. They disappeared after a few days. Koerner distinguishes four forms of pure influenza otitis:

1. Cases in which there are hemorrhagic exudates, and hemorrhagic blebs on the drum membrane, from the beginning.

2. Cases in which the drum membrane pouts, and the

granulations of the thickened mucous membrane crowd through the perforation.

3. *Primary* central disease of the mastoid process, with secondary inflammation of the tympanum.

The ring-shaped secondary hemorrhages of the drum membrane.

In remarkably many cases of influenza otitis, the disease seems to have a preference for, or is even restricted to, the attic. Houg differentiates between exudates in the anterior portion, corresponding to Shrapnell's membrane, from those in the posterior portion; the latter being much more serious. Early paracentesis is urged.

Morgenthau.

A Case of Deafness with Disturbances of Equilibrium and Pulsating Exophthalmus.

550. PHOTIADES AND GABRIELIDES, Constantinople. (*Annales des maladies de l'Oreille du Lar. du Nez. et du Pharynx*, August, 1898.) A man of 26 fell from a tree 3 to 4 meters high. He suffered a great loss of blood from his nose, mouth and ears. Immediately afterward all the above named symptoms developed. He was unconscious for three days, and later had to stay in bed for three months, after which a suppurative, or rather a flowing of yellow watery, fluid from both ears developed, which persisted for six or seven months. There is complete facial paralysis. A very careful examination of vision and hearing, as well as electric reactions, gives a number of very interesting results. The exophthalmus improved, but the dizziness persisted.

Holinger.

Remarks as to the Right Moment for Trephining in Mastoiditis

551. POLO. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 39, Sept. 24, '98.) The author sums up the contents of his paper:

1. The mastoid operation is an excellent one.
2. It is not always devoid of danger.
3. So long as there are no brain symptoms, or if the swelling over the mastoid is not well limited, we should wait; exception from this rule has to be made in well defined cholesteatoma.

Holinger.

Paralysis of the Facial Nerve in the Course of an Acute Otitis Media—Recovery.

552. PONTAIRE. (*Annales des maladies de l'Oreille du Lar. du Nez. et du Phar.*, No. 8, August, 1898.) A barber of 22 complained of loss of hearing, especially in the left ear. He had an old suppuration in the right ear, and for some time running of the left ear also. In the course of the treatment he got an acute attack of inflammation of the left ear, with nearly complete facial paralysis, which disappeared after paracentesis almost as suddenly as it appeared. The patient had a chancre 4 years previous and has had ozena.

The author mentions other observations of facial paralysis in acute otitis media. The title of this paper is misleading, because the case is not one with acute otitis media but with chronic otitis, and furthermore, in a syphilitic individual. It cannot be called a case of facial paralysis in "acute otitis media."
Holinger.

Sinus Disease of Otitic and Rhinitic Origin and General Infection.

553. PREYSING, ROSTOCK. (*Archives of Otolaryng.*, Vol. XXVII, No. 4.) The following 10 cases were observed at the ear and throat clinic:

Case 1.—Suppurative ethmoiditis after scarlet fever. Orbital abscess, phlebitis of cavernous sinus and septico-pyemia, evacuation of the orbital abscess and the ethmoid cells. Death.

A child, aged 5, was taken ill with scarlet fever; a purulent discharge from the nose set in and the temperature rose to 40° C. The left eye became sensitive to light, and the lids edematous. Both mastoids became tender, and on the following day both ears discharged.

The child appeared emaciated, and the lids of the left eye were edematous. The edema increased, and the left eye protruded. The temperature gradually returned to normal, but after an interval of some days it suddenly shot up, with diarrhea, abdominal distension, rapid pulse and respiration. The left eyeball was forced down and out, but no swelling appeared at the orbital margin, except the edema.

As there was no evidence of pus retention in the ears,

the cause of pyemia had to be looked for in ethmoidal suppuration and orbital abscess. A subperiosteal orbital abscess was evacuated, the osplanum was carious and the diseased ethmoidal cells curetted. The frontal sinus was opened and found empty. The symptoms were relieved, but death ensued.

Case 2.—Pyemic fever in acute otitis media. Recovery after evacuation of the tympanic abscess.

A child, aged 15 months, was taken ill with double-sided acute otitis media. After ten days the right ear ceased to discharge, and the temperature rose to over 40° C., with anorexia, somnolence and irritability. The right Mt. was red and prominent, and a paracentesis allowed escape of serous fluid and blood. The following day the auditory canal was filled with pus. Rectal temperature showed a fall of 5° C., on the morning of the following two days, with an evening rise to almost the same height.

The discharge from both ears grew gradually less, and the child made a rapid recovery.

Case 3.—Cholesteatoma, sinus thrombosis. Operation. Recovery.

A man, aged 29, suffering from right-sided otorrhea, had the discharge suddenly cease and severe pain in the head set in, with chills and fever. The right auditory canal contained a large polypus. The right mastoid was tender along its posterior margin. Temperature 38.2 C.

The mastoid was opened and found sclerosed. The sinus was surrounded with pus, and granulations lined the bony wall of the sulcus transversus down to the jugular foramen.

The antrum was exposed by Stacke's method, and contained a few granulations. A fistulous track led to the diseased sinus. The sinus was incised and a dark, soft clot evacuated. The wound was packed, and recovery was uneventful.

Case 4.—Cholesteatoma, sinus phlebitis; pyemia; operation; meningitis serosa ventricularis acuta; death.

A man, aged 21, had a discharge from the left ear since youth. He felt severe pain in the left ear, which radiated to the back of the neck. Temperature, 40.2° C. The left mastoid was tender on pressure. The left auditory canal led to a cavity filled with cholesteatomatous masses. The right canal contained pus; the Mt. was perforated.

The left mastoid was opened, it was eburnated but soft, and hyperemic at the tip. Antrum, tympanum and canal formed a large cavity filled with cholesteatoma extending toward the tip and to the sinus. On return to consciousness, facial paralysis was observed. Paroxysmal pains caused the patient to cry out. The pulse was slow, sluggish and irregular. Horizontal nystagmus on looking to the right. Deglutition difficult. Cheyne-Stokes respiration and coma developed. After death the left lateral ventricle was found greatly distended, with a clear yellowish fluid (meningitis serosa).

Case 5.—Acute suppuration in both temporal bones, presumably after measles. Severe pyemia, with multiple joint-metastases. Opening of both mastoid abscesses and of three joints. Death after 6 hours. No autopsy.

Reported by Koerner. See abstract July, 1897.

Case 6.—Thrombophlebitis of the lateral sinus. Purulent lepto-meningitis. Metastasis in the lungs. Death.

The patient entered the hospital in a moribund condition. On autopsy the veins of the cortex were congested. The upper wall of the left lateral sinus was composed of a yellowish, cheesy mass. The longitudinal and right lateral sinuses contained coagulated blood. The upper and lower surfaces of the left cerebellar hemisphere were covered with a purulent membrane and puriform masses have perforated the pia.

In the posterior fossa, near the sigmoid sulcus, was found carious bone. Clear serum distended the ventricles. The pericardium contained clear fluid. The left lung was adherent to the costal pleura, and in its lower lobe were two abscess cavities about $\frac{3}{4}$ cm. in diameter. Many similar abscesses were scattered over the surface of the three right lobes.

Case 7.—Thrombophlebitis of the right lateral sinus. Sepsis. Operation. Death.

A woman, aged 20, who had cough and fever for several weeks, complained of swelling and tenderness of the left mastoid. Temperature 40.2° C.; pulse 144–152. The right auditory canal is filled with pus and a large granuloma. The tip and posterior margin of the right mastoid are tender. The mastoid was opened and found soft near the tip, the antrum was filled with granulations. Posteriorly

at a depth of 1 cm. a peri-sinus abscess was found; this region was curetted. A track was found leading from the antrum to the peri-sinus abscess. The neck below is diffusely infiltrated and hard.

On autopsy the dura is unchanged, except near the mastoid antrum. The neighboring bone is discolored and soft. Thrombus extends in the sinus half way back to the torcular. The thrombus is adherent to the wall, and near the center grayish green and soft.

Case 8.—Thrombophlebitis of the lateral sinus and pulsating abscess of the sinus from cholesteatoma in a woman 74 years of age, after otorrhea of 60 years duration. Operation. Recovery.

A woman, aged 74, who had a discharge from her left ear since her 14th year, was taken ill with influenza and pneumonia. The left ear began to pain and the discharge ceased. There was high fever, rigors and delirium. The mastoid became tender, and the upper wall of the auditory canal bulged. The radical operation was performed. The antrum was found full of cholesteatomatous masses, and the bend of the sinus was covered with granulations and pulsated. The sinus being accidentally torn, pus escaped. The sinus and bone cavity were separately tamponed. A secondary plastic operation (Koerner's,) was made three weeks later. Recovery was uneventful.

Case 9.—Healed otitic phlebitis of the left cavernous sinus.

A child, aged 13, had suffered from otorrhea of both ears for seven years. The discharge suddenly stopped, with high fever, rigor and headache. The left auditory canal contains pus; the Mt. is swollen above, and there is a perforation, behind which several white shreds appear. The radical operation was performed on the left side. The bone was sclerosed; the granulations in the tympanum were curetted, and the hammer and anvil removed.

Next day the patient complained of diplopia; the left abducent nerve was paralyzed; diarrhea and typhoid-like symptoms appeared; vomiting, jaundice, double choked disc. The left eye was distinctly prominent. These symptoms gradually improved; the temperature, which had reached 40.6° C., declined, and the hearing—which for

some days was lost—slowly returned, but was more acute in the right ear.

Case 10.—A boy, aged 8, twenty-two days before, was kicked by a horse on the left ear. He vomited a number of times, but there were no other symptoms.

On the second day he was peevish, restless, and complained of headache. During the night of the third day he lost his hearing. Evening—temperature, 38° C. to 40° C. No ocular symptoms, no aphasia, no paralysis; complained of pain in the left ear and occiput. On palpation an oval depression, with sharp edges, occupies the temporal squama and the parietal bone.

Total deafness for speech, bells, high and low tuning forks. Mt. and tympana normal; no bone conduction. Patient can read writing and answer written questions. A probable diagnosis given of abscess of the dura or of the brain. In operation, on dividing the integument over the posterior end of the fracture, half a drachm of purulent fluid escaped. The bone was reflected and the dura found normal and pulsated. At the lower part, near the depressed fracture, an area of yellowish-red granulation tissue was visible between dura and bone. This was removed, and the wound closed.

In the following days repeated vomiting and headache. The dura was opened and the brain punctured without result. Edema of the upper eyelid, and the dural wound protruded. A superficial abscess of the temporal lobe found, which contained streptococci. Lumbar puncture performed and cloudy fluid drawn off containing pus cells, with diplococci and cocci in chains of four.

Patient gradually failed; nystagmus, spasms of the right facial nerve, convulsions and death. On autopsy, in the left temporal lobe was found a cavity filled with 50 ccm. of cloudy yellow fluid. The lateral ventricles were distended, with 100 ccm. greenish flocculent fluid. The ependyma thickened. In the left lateral ventricle, near optic thalamus, the brain substance was broken down.

Campbell.

Earache; Causes, Treatment, Relation of the Exanthemata Thereto.

554. RICHARD, G. L. (*Boston Med. and Surg. Jour.*, July 28, 1898.) A review of the causes of earache and

its treatment. The most obstinate cases of purulent diseases of the ear are connected with or are sequelæ of scarlet fever. This is also the case with measles and diphtheria, although to a less degree.

Scheppegrell.

Surgery of the Pneumatic Sinuses of the Skull in Relation to Ophthalmic and Aural Surgery.

555. SATTLER, ROBT. (*Medical News*, Sept. 10, 1898.) In many cases of periorbitis and periostitis of the margin of the orbit, an exploration of the frontal or maxillary sinuses will disclose the origin and the cause. Uncontrollable neuralgia of the frontal and infraorbital region, when other causes are eliminated, may be due to disease of the pneumatic cavities of the frontal and maxillary sinuses. The same necessity of thoroughness in the diagnosis, and prompt and painstaking attention in surgical methods, which are now given to the pneumatic cases of the temporal bone, should be applied in lesions of the ethmoidal, sphenoidal and maxillary sinuses.

Scheppegrell.

A Combined Eustachian Inflator and Ear and Nose Douche.

556. WALTER, W. (*Jour. Amer. Med. Ass'n*, Aug. 13, 1908.) An ingenious appliance, which the author claims to be useful as an Eustachian inflator and ear and nose douche.

Scheppegrell.

Abscesses in the Neck Consequent on Diseases of the Ear.

557. FERRERI, GHERARDO. (*Laryngoscope*, August, 1898.) The most common paths taken by pus coming from the tympanic cavity and the mastoid antrum are through the posterior canal wall, through the external wall of the mastoid, through the superior wall of the mastoid, which is continuous with the tegmen tympani, and through the posterior wall of the mastoid, which lodges the sigmoid groove, in which is found the transverse sinus. The opening is frequently through the hardest part of the bone, and the abscesses must be considered as being propagated through the agency of pyogenic micro-organisms, which travel through the connective tissue, lymphatic and venous systems, possibly through the nervous structures,

and even through the bony wall of the mastoid. The rich network of intra-osseous veinlets in the temporal bone, favors the development of osteomyelitis, and in chronic infections of the attic and mastoid antrum this network may be the seat of thrombi. By obstructing the normal vascular current, these thrombi favor the transportation of pyogenic micro-organisms to the extra-aural regions.

In explaining the formation of neck abscesses consequent on and concomitant with otitic process, consideration must be given to the venous network at the base of the cranium. In infancy abscesses do not occur with more frequency because of the natural drainage existing between the limiting portion of the temporo-auricular regions, while in adults, on account of the conformation of the bony structures, the free drainage of pus coming from the ear cannot be the same.

Abscesses of the neck are variously divided by different writers. and the Roman classification is the following: (1) Superficial, when they infiltrate the subcutaneous connective tissue; (2) interstitial, when they infiltrate the inter-muscular spaces; (3) very deep, or *para-scheletrici*.

Loeb.

A Case of Epithelioma of the Middle Ear.

558. WILKIN, G. C. (*Journal of Laryngology, Rhinology and Otology*, July, 1898.) Although only 20 such cases are to be found recorded in literature, the writer has met with three. In the case which he reports the growth first appeared as a polypi, which was removed. The recurrence was very rapid, appearing as a purple, slightly mammilated friable mass filling the concha, which microscopical examination proved to be epithelioma. The patient died in six months.

Loeb.

Exostosis of the External Auditory Canal.

559. GOLDSTEIN, M. A. (*Journal of Laryngology, Rhinology and Otology*, July, 1898.) Henry C., aet 23, suffered from acute earache of 2 or 3 weeks' duration three years ago, since which time several other attacks have occurred, succeeded by itching sensation and impaired hearing. Examination of the left ears showed a rounded mass offering considerable resistance, pale red in color, painful

upon pressure, and within a half inch of the external opening. After several unsuccessful attempts to remove the growth with a Wilde-Blake snare the mass was extirpated by placing a long shallow concave curette over the convex surface of the tumor, and by loosening it with a gentle, firm leverage, by means of which it was carried out of the canal. *Loeb.*

A Case of Hysterical Nerve Deafness, with Spontaneous Recovery.

560. GRANT, DUNDAS. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The deafness, which was of three years' duration, had come on gradually, but had become much worse after the extraction of eight teeth some three months before seeing the writer. A diagnosis was made of nerve deafness of indeterminate origin, but probably "auto-suggestive." Eighteen months later the hearing returned, after an indisposition which required her to remain in bed for two weeks. The tuning-fork test made at the first visit showed complete loss of hearing for C_2 and C_1 , while for the other forks, extending from C up to C^5 , the hearing power varied from 3 to 15 per cent. The tuning-fork test for middle tones, C^1 answered to the type of nerve deafness, and they were sufficient to exclude middle ear disease. The tests for air conduction throughout the whole range of audition indicated that the maximum of loss was for the deep tones. In typical disease of the labyrinth the opposite would be the case.

Loeb.

Aural Exostoses.

561. LAKE, R. (*Journal of Laryngology, Rhinology and Otology*, August, 1898.) The writer reports two cases, in one of which the chisel was employed and in the other a Stacke operation with the writer's metal flap gave an excellent result.

Loeb.

Aural Reflexes.

562. YEARSLEY, M. (*Journal of Laryngology, Rhinology and Otology*, May, 1898.) After considering the nerve distribution and relation of the ear, including the vagus, glosso-pharyngeal, facial sympathetic and the fifth, it is not to be wondered that irritation of the terminal fil-

ments should call forth reflexes of corresponding amplitude. They include ear cough, cardiac taste and gastric reflexes, epileptiform convulsions, hiccough and oculo-motor reflexes. Illustrative cases are reported of each variety.

Loeb.

Considerations and Observations on the Surgical Anatomy of Tympanic Antrum.

563. LAKE, R. (*Journal of Laryngology Rhinology and Otology*, May, 1898.) *Lateral Sinus*.—Sections of twenty-eight bones were made by a saw-cut passing in a horizontal direction through the small fossa situated immediately superior to the supra-meatal spine, and careful tracing were made from each. By comparing these it was possible to formulate three groups.

1. That class of skull in which the sinus must unavoidably be opened, or rather exposed during operation on the antrum.

2. That in which it may or may not be seen during the operation.

3. That in which it will not come into view. The writer concludes that about once in six cases operated upon, the sinus will come into view. The average depth of the attic is three-tenths of an inch from the surface, and the nearest point of the sinus to the antrum is on the average of 0.48 of an inch, its smallest distance being 0.2 of an inch and its greatest 0.7 of an inch.

The Middle Fassa.—In two cases out of the twenty-eight this lay at so low a level that it would have been quite impossible to have reached the antrum without entering the fassa or almost doing so.

The Facial Nerve.—There are two principal points where the nerve is exposed to injury in operative procedures around the mastoid—first, in the aqueduct of Fallopius; and secondly, for the first quarter of an inch after it next enters the mastoid.

The Vestibule.—The only part of the labyrinth which is exposed to any real liability, is the external semi-circular canal, the depth of which is only that of the Fallopiian canal from the surface.

Loeb.

Fallacies in the Physiology and Functions of the Labyrinth.

564. GOLDSTEIN, M. A. (*Laryngoscope*, September, 1898.) The writer combats the present accepted theories concerning the function of the semi-circular canals by reference to a case of extensive exfoliation of the labyrinth. This patient walked into the assembly hall of the medical society with a thoroughly steady gait and a perfect sense of direction, walking with head and body erect, and turning to the right or left as indicated by the members of the Society conducting the examination, and all the while the exfoliated labyrinth containing the cochlea and semi-circular canals taken from his right temporal bone was lying upon the table. It was even possible to demonstrate that there was still some hearing power remaining in the affected ear.

Loeb.

Mastoiditis.

565. SISSON, E. O. (*Laryngoscope*.) Conclusions: Most cases of mastoiditis are the direct result of chronic purulent otitis media, but they are not produced in proportion to the frequency of the latter, and, therefore, there must be some existent condition or conditions exerting an influence in this direction.

The pathological conditions are not necessarily the same in any two cases.

Loeb.

II.—NOSE AND NASO-PHARYNX.**Acute Non-Suppurative Sinusitis from Pneumococci.**

566. BERNARD, RAYMOND. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 30, Aug. 13, '98.) Two interesting cases are accurately reported:

1. A physician returned from a long journey, much exhausted. October 20th he caught cold, on the 28th felt very sick and unable to work. While reading a paper several drops of fluid discharged from the right nostril. The fluid was rusty red, and contained pneumococci. Several other symptoms of sinusitis developed on one side. The discharge and pain continued until November 5th, when all symptoms disappeared as suddenly as they had developed.

2. The second observation is similar. An hospital waiter had an angina, in the course of which the sinusitis set in. It lasted for six days after which quick recovery took place. Here, too, a careful bacteriologic examination was made of the characteristic rusty fluid, and pneumococci were found.

Holinger.

**Cystic Degeneration of Both Middle Turbinated Bodies—
Multiple Mucous Cysts.**

567. BERNOND, M. (*Annales des malad. de l'Oreille du Lar. du Nez. et du Phar.*, No. 10, October, 1898.) A mouth breather of 67 had his nose examined. Both sides, the right more so than the left, were filled with large transparent masses. They were removed and proved to be cysts of various sizes filled with clear watery fluid.

Holinger.

Acne Rosacea and its Treatment.

568. BLOEBAUM, F. (*Deutsche Med. Zeitung, New Orleans Med. and Surg. Journal*, November, 1898.) After correcting intranasal pathologic conditions, such as hypertrophy, septal obstruction, etc., the acne of the nose was treated in the following manner:

Infiltration anesthesia was first established and the patient ordered to drink a couple of glasses of wine in order to develop the efflorescence of the nose more markedly. The fine point of a cherry-red cautery needle was passed over the vessels, occasionally pressing a little deeply. After the operation ice compresses were applied for some hours and rest in the bed ordered. Later, sedative dressings were used. The reaction was extremely slight. Repeated applications were made to the dilated capillary vessels and to the nodule until the whole nose had been treated. A month later, the patient appeared cured and the scar was almost invisible.

Scheppegrell.

A Case of Pseudo-Membranous Rhinitis.

569. CARTAZ. (*Rev. hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 36, September, 1898.) Diphtheria bacilli have been found by several observers in the membranes of pseudo-membranous rhinitis. In the case the author reports they were also found, although general infection was absent and no infection of other people occurred.

The case is not a clear one, as there was syphilis present.

Holinger.

The Influence of Diseases of the Stomach Upon Nasal and Postnasal Catarrh.

570. CONKEY, C. D. (*Medical Times*, August, 1898.) Clinical cases of nasal and postnasal catarrh are apt to give a history of derangement of the stomach and are invariably made worse by any unusual disturbance of this organ. These cases improve under treatment directed to restore the digestive organs to the normal condition, and without this the result will not be lasting or satisfactory. *Scheppegrell.*

Experimental Studies Concerning Douches and Washings of the Naso-Pharynx.

571. JACOBSON, ALEXANDER, St. Petersburg. (*Annales des maladies de l'Oreille, du Larynx, du Nez, et du Phar.*, No. 8., August, 1898.) A historical introduction to this subject states that not Trautmann, but Weber (1864) was the first man to advise nasal douches. The douche has been abandoned by many physicians on account of the dangers connected with it. To avoid these the author advises the use of a small rubber canula applied with forwardly overhanging head and not too high pressure or too large quantities of fluid. For washing of the nasopharynx not more than 15 cc. at a time in adults are used and only a few drops in children. To ascertain how much pressure is needed to make the fluid enter the middle ear experiments on the cadaver showed great differences. The lowest pressure was 3 cm., the highest 27 cm., although in both cases the Eustachian tube was normal. Equally surprising are the facts that with very low pressure the fluid may be forced into Highmore's antrum and the frontal sinus. Therefore the author states that all cases of suppurations of the maxillary sinus do not require operation, but often yield to treatment with Hartman's canula. In ozena he prefers the douche to the treatment with tampons. *Holinger.*

Rhinomiosis (Reducing the Nose by Operative Measures).

572. JACQUES, JOSEPH, Berlin. (*Berliner Klin. Wochenschr.*, No. 40, Oct. 3, 1898.) The author, who reduced ears of extraordinary size, was called upon to attempt to relieve the physical depression of the patient, due to the jibes this modern Cyrano de Bergerac was subjected to because of

his perfectly healthy but (both on account of its form and dimensions) conspicuous nasal organ. The article contains 5 figures, two of which show the patient "before" and "after," while the others illustrate the different steps of the operation.

Before the operation:

1. The bridge of the nose was too long; *i. e.*, the point of the nose hung too low.
2. The point was too prominent; thus making the nostrils quite wide.

After the operation:

1. The nose was rather too short than too long.
2. The nose did not project too much, and the nostrils were, therefore, proportionately smaller.
3. The nose has been rid of the "hump;" it is straight.

	Before. cm.	Now. cm.	Diff. cm.
1. Distance from the root to the end of the nose - - - -	6½	5½	1
2. Distance from the point of the nasal-labial fold - - - -	4½	3½	1

The operation can be divided into three stages:

1. Removing the skin which is not needed for the new nose, and reducing the nostrils.
2. Cutting away the superfluous portions of the bony and cartilaginous roof of the nose.
3. Reducing the size of the septum, in order to elevate point of the nose.

The first act was done in the following manner: Two straight diverging incisions were made from the middle of the root of the nose to the nostrils. In the upper part, they penetrated to the nasal bones and the triangular cartilage, while, lower down, the nasal alæ were severed in their whole thickness. In the same way, two other symmetrical incisions were made, about 1/2 cm. further inward, sparing the point of the nose, and toward the middle of the nose, uniting about 1 1/2 cm. above the point. There was thus formed an equilateral triangle of skin with two prolongations downward, containing in parts pieces of cartilage (corresponding with the alæ). This was dissected away from the underlying tissues.

Then, in the second stage the remaining skin was separated for about 1 cm. from the nasal bones, and the triangular cartilages. A chisel was placed first on the one, and then the other, nasal bone in the direction which the nose was to have in the future, and driven through them with a few blows. In the same direction and extent the septum was treated with the chisel, thus creating a cleft. A knife was introduced through the opening, and with it the lower part of the roof (not only the hump) removed by cuts directed downward, through the septum, and lateral walls of the nose. Both nasal cavities were thereby exposed to view, the upper part, however, only through two narrow chinks.

The third stage consisted in a wedge-shaped horizontal excision from the lower part of the septum; the upper incision going through the quadrangular cartilage, the lower through the membranous septum. This completed the operation itself, to suturing. First, the margins of the wound made by the wedge-shaped incision were united (septal suture); then, beginning at the root of the nose, the margins of the wound in the skin. These last sutures form an inverted Y. The operation lasted a little more than one hour. The wound healed by first intention; the patient was discharged on the thirteenth day. The scars are linear and inconspicuous.

Morgenthau.

**Chronic Posterior Pharyngitis, and Its Treatment with
Curetting.**

573. MALHERBE. (*Rev. hebdom. de Laryngol. d' Otol. et de Rhinol.*, No. 4, Oct. 1, 1898.) In many cases where we find in adults hypersecretion in the pharynx, we find in the history symptoms of adenoids in younger years. Such patients try all kinds of things to get rid of these secretions. The author says they cough through the nose and blow the nose through the mouth. Examination reveals hypertrophies and often cysts of the Luschka tonsil. The remedy the author sees in curetting of the naso-pharynx.

From the seven observations published, there is no doubt that M. Malherbe speaks of what we call adenoid vegetations in adults. He treats them as above said with curetting under a narcosis of bromide of ethyl.

Holinger.

A Case of Rhinolith.

574. MIAT. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 33, Sep. 17, 1898. Read before the French Laryngol. Society, May, 1898.) This case was of very long standing, the first symptoms dating back as far as 1867. Manifold symptoms developed: sick headache, nervous symptoms, melancholia, etc. Even Charcot had no idea of the true nature of the trouble till in April, 1889, a piece of a probe incrustated with lime salts was removed from the patient's nose, after which he made a quick recovery. The author adds some suggestions for treatment.

Holinger.

A Case of Subjective Parosmia.

575. LILLIE, Noquet. (*Rev. hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 35, Aug. 27, 1898.) Parosmia may be produced by cerebral lesions, carcinoma, glioma, tubercular tumors, gumma. Intoxications also, especially with lead, may be the cause. In pregnant and hysterical women parosmia has been noticed.

Finally, diseases of the nose may be connected with parosmia. Charazac reported a case of extreme anemia of the nose with parosmia. The author saw two cases, one of which was very accurately studied. A lady of twenty-five suffered from a very disagreeable subjective smell of putrified meat which spoiled every meal for her. The doctor could not smell anything, and on examination the only abnormality was that the lower turbinated bodies touched the septum. After trying many other methods of treatment without avail, these turbinated bodies were reduced, and gradually the parosmia disappeared.

Holinger.

Fracture of the Nose Complicated with a Rhinolith.

576. REARDON, T. J. (*Boston Med. and Surg. Journal*, July 28, 1898.) The patient, aged 28, sustained an injury of the nose while riding a bicycle. On examining the nostril, a grayish mass was found lying close by the side of the lower turbinal on the right side. When removed it proved to be a rhinolith one cm. in diameter, with a cherry-stone as a nucleus.

Scheppegrell.

The Effect of Hypertrophy of the Inferior Turbinal on the Nasal Septum.

577. SOMERS, L. W. (*Universal Med. Magazine*, July, 1898.) The author believes that deflections, thickenings and spurs of the cartilagenous plate of the septum are to some extent dependent upon pneumatic traumatism, the inspired air-current being altered and deflected in its course through the nasal chamber by variations in the surface topography of the anterior end of the turbinal tissue.

Scheppegrell.

Fractures of the Bones of the Face.

578. WARDEN, C. C. (*Medical Record*, July 23, 1898.) A description of the more common causes of fracture of the inferior, nasal, superior, maxillary, malar, palatal, inferior and lachrymal bones, with a description of the symptoms and methods of treatment.

In fractures of the nasal bones, the deformity is usually marked and a tendency to repair active. A week will suffice to bring about such firm union, that any attempted repair of the deformity may be well nigh impossible. Where there exists considerable fragmentation, reduction is always difficult. The bone should be moulded into position by the fingers of the operator from without, aided by the counter-pressure from within of a stout probe or director. General anæsthesia is usually required. Where there is a tendency to slip on the part of the fragments, they may be anchored with a hairlip pin or with metal braces, exerting steady pressure from within. Tamponing should be avoided. An ordinary hairpin properly bent and adjusted, the free end of which is imbedded in a thin layer of cork which is retained on the upper lip by adhesive rubber strips, usually gives sufficient pressure. A moulded thin felt splint adjusted so as to cover the entire bridge of the nose and the cheek, retained in position by adhesive straps, affords full protection from without.

Fibroma of the Naso-Pharynx, with Report of Case.

579. WOODSON, L. G. (*Laryngoscope*, August, 1898.) The patient, aet. 18, had suffered for two years from a thick tenacious muco-purulent discharge from the nose, nasal stenosis which progressed to complete obstruction, repeated attacks of epistaxis, anosmia, and for six

months a very annoying cough, with distressing dyspnea. A large tumor was observed, completely filling the nasopharynx and pressing the soft palate downward and forward, and projecting for a half inch or more into the oropharynx. The tumor, which was hard, dense and very slightly movable and of a reddish color, was attached by a broad base to the pharyngeal vault. The tumor, which measured $2\frac{1}{2}$ inches in length by $1\frac{3}{4}$ inches in breadth, was removed by means of an electro-cautery snare, however, the hemorrhage was profuse and persistent. Fourteen months later, on account of a recurrence, a second operation was performed, with a modified Jarvis snare introduced through the agency of Bellocq's sound, five and one-half hours being consumed in slowly tightening the snare, with a few drops of blood as a result. A similar recurrence was treated in the same way.

He deduces the following conclusions:

1. Few, if any, fibromata cannot be successfully and safely extirpated.
2. The method of operation has little or no influence in preventing recurrence.
3. Operation should only be resorted to as a relief of urgent symptoms. After adolescence it is generally unnecessary.
4. The greatest danger is from hemorrhage.
5. The galvano-cautery loop is rapid, but it fails to absolutely prevent hemorrhage.
6. The cold-wire ecraseur is best, being bloodless, painless and easy of manipulation.
7. Injections of escharotics are objectionable.

Loeb.

Foreign Body in the Nostril for Five Years.

580. PRATT, J. A. (*Laryngoscope*, August, 1898.) By means of a strabismus hook nearly one-half of a seed (probably that of a plum,) was removed. *Loeb.*

Scar Tissue in the Pharynx, Following Scarlatina and Complicating Adenoid Vegetations.

581. FELT, C. L. (*Laryngoscope*, August, 1898.) The posterior pillars were free above, but about 1 cm. below their juncture with the uvula both were drawn toward the

median line and converted into scar tissue, which was continuous with scar tissue on the pharynx proper between the pillars.

Loeb.

Injury to Inferior and Middle Turbinals in Operation for Deviated Septum.

582. STUCKEY, J. A. (*Laryngoscope*, September, 1898.) Attention is called to certain injurious results following Asch's operations, such as adhesion of the turbinals to the system. In one case turbinectomy was necessitated.

Loeb.

Notes on a Case of Membranous Rhinitis.

583. LAKE, R. (*Laryngoscope*, September, 1898.) A patient, aet 54, had symptoms of subjective smelling and nasal obstruction. Chronic rhinitis, with unusual pallor, was present, with a number of whitish flakes of apparently coagulated secretion. Ten months later he again appeared to seek relief from the old trouble, which had increased in severity. Bacteriological examination showed no other organisms present, except *staphylococcus pyogenes aureus*.

Loeb.

Cysts of the Floor of the Nose.

584. KELLY, A. B. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The writer excludes the cysts occasionally found in polypi, and the so-called cysts of the middle turbinate or septum, and reports three cases. The patients were all females, and the tumors in each instance appeared in exactly the same situation, namely, on the floor of the nose at its anterior end, just behind the junction of the skin and mucous membrane. The first was of the size of a pea, and when punctured subsided without recurrence. In the second it was slightly larger, and likewise disappeared after puncture, and did not recur after puncture. The third gave rise to marked facial disfigurement and considerable suffering. Upon puncturing the cyst at its most prominent point, a pale yellow transparent fluid exuded, and the nose assumed its normal appearance. At first a watery fluid poured out of the affected side, and later this became purulent. The sac was dissected out from its bed upon the periosteum in the incisor fossa extending beneath the floor of the vestibule from the middle line to beyond the outer margin of

the ala. The wall of the cyst was lined by epithelium from two to twelve cells deep. The cells of the deepest layer have a more or less cubical form, and were set on a broad basement membrane. The epithelial nuclei had a circular or oval outline, and stained sharply throughout. The subepithelial matrix was in great part composed of loose fibrous tissue, through which very numerous blood vessels coursed, and here and there the tissue was over-run with round cells. The fleshy mass at the lower end was composed of altered gland tissue.

With the object of finding anatomical conditions which favor the development of cysts in this particular region, the writer made a series of transverse and sagittal sections of the lining membrane stripped from the floor of the nose. The sections show that commencing posteriorly the lining membrane in almost its entire thickness is made up of glandular tissue; in passing forward and approaching the alar cartilage, however, the membrane increases in depth and the glands are gathered into large sharply defined collections, with fibrous tissue between. From these long ducts pass upward and open the surface, where its characters are those intermediate between skin and mucous membrane, and in several instances cyst-like dilatations were observed. The fact that the position of these long ducts coincides with that of the cysts just described, raises a strong presumption as to their origin, so that there is justification in regarding them retention cysts.

Loeb.

**Contribution to the Complications Following Extirpation of
So-called Adenoid Vegetation.**

585. SENDZIAK, JOHN. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The writer adds malarial fever to the following complications expressed in his "Manual of Diseases of the Nose," etc.:

1. Affections of the middle ear.
2. Acute lacunar tonsillitis.
3. Secondary hemorrhage.
4. Impaction of fragments in the air passages.

Loeb.

The Rationale of Removing Adenoids for the Cure of Chronic Suppurative Otitis Media of Children.

586. LAKE, R. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The removal of adenoids necessarily allows a restoration of the potency of the Eustachian tube, which permits drainage and, when the nose is blown, tends to clear the cavum and external meatus of discharge. *Loeb.*

A Case of Foreign Body in the Naso-Pharynx.

587. MILLIGAN, W. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The foreign body proved to be a marble, which had become impacted in the naso-pharynx between the septum and post-pharyngeal wall. *Loeb.*

Report of a Death Following Immediately an Operation for Naso-Pharyngeal Adenoids Under Chloroform.

588. HINKIE, F. W. (*Journal of Laryngology, Rhinology and Otology*, August, 1898.) The patient, a boy aet 8, on account of vomiting and incidental delays, was given an ounce of chloroform. Just as the operation was completed, he gave a few hurried shallow gasps and died.

The writer concludes:

1. Statistics show an exceptionally high mortality from the chloroform anesthesia in the operation for the removal of lymphoid hypertrophies of the pharynx.

2. The observations of the Vienna pathologists show that sufferers from "adenoids" frequently belong to an abnormal constitutional type that has been peculiarly susceptible to chloroform narcosis.

3. In view of the statistical and pathological data presented, the general use of chloroform in the operation for hypertrophied tonsils or naso-pharyngeal adenoids is inadmissible. *Loeb.*

Paralysis of the Abductors in Progressive Organic Disease.

589. MACINTYRE, J. (*Journal of Laryngology, Rhinology and Otology*, May, 1898.) The writer presents the views which Grossmann advances in opposition to those of Semon and of most laryngologists and neuro-physiologists regarding the validity of Semon's law. *Loeb.*

Treatment of Ozaena by Anti-Diphtheritic Serum.

590. (*Journal of Laryngology, Rhinology and Otolology*, August, 1898.) As a result of his experience in the use of this agent in ten cases the writer concludes that the subcutaneous injection of anti-diphtheritic serum in cases of genuine ozaena has an immediate and very marked effect upon the mucous membrane of the nose, and that it is the most effective treatment at present used. The proper dose for adults is 10 c. c. of a serum containing 100 anti-toxin units in each c. c., and this may be increased to 15 c. c. It is best to wait eight to 12 days before repeating the dose; 5 c. c. may be employed for children. *Loeb.*

III.—MOUTH AND PHARYNX; TONSILS, DIPHTHERIA.**A Case of Diphtheritic, Gangrenous Angina, Complicated with Mastoiditis. Trephining. Recovery.**

591. BAR, (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.* No. 39, September 24, 1898.) The gangrene extended as far as the gums, the inner surface of the jaw and the lips. No Klebs-Loeffler bacilli were found, therefore no antitoxin was used. At the acme of the attack, a mastoiditis made an operation necessary. A resulting fistula persisted for three months, but the child, a girl of nine years, recovered. *Holinger.*

Two Cases of Ludwig's Angina or Sublingual Phlegmon.

592. CASSELBERRY, W. E. (*Chicago Med. Recorder*, May, 1898.) In the first case, the sublingual phlegmon appeared marked, the mouth could not close, and there was diffused tumefaction of the cutaneous surface beneath the jaw, but insufficient to indicate any certain line to the approach of a possible abscess. Edema of the larynx supervened, and the patient died in spite of a prompt tracheotomy.

In the second case the symptoms also appeared grave, but fluctuation was evident in the vicinity of the right sublingual salivary gland, the opening of which gave relief. The patient made a tardy recovery.

The author advises prompt tracheotomy as soon as difficult respiration supervenes. *Scheppegrell.*

The Use of Antitoxin.

593. CATTERMOLÉ, G. H. (*Medical News*, August 20, 1898.) The general use of antitoxin as a prophylactic during epidemics, and its careful and skillful use in all cases of the disease, would, in the opinion of the author, reduce the death from diphtheria to *nil*. Erythema is the most serious complication attending its use, but is not of sufficient importance to make one hesitate in the application of this agent.

Scheppegrell.

Angioneurotic Edema of the Tongue.

594. HALLOCK, F. K. (*Atlantic Med. Weekly*, July, 1898.) The patient, a school teacher of 27 years, had been suffering from simple neurasthenia. After eating some ice cream and macaroon cake, her tongue began to swell and soon almost filled the mouth. Cough and dyspnoea developed and the left side of the neck showed marked external congestion. The left side of the nose also began to swell, and respiration became so difficult that there was fear of suffocation. One-half hour later, the symptoms began to subside, and an hour afterwards all signs of the angioneurosis had disappeared. The attack occurred on the day on which the menstrual function was due.

Scheppegrell.

Glosso-Epiglottic Phlegmon.

595. CAZ, JACOB, St. Petersburg, Russia. (*Fraenkel's Archiv*, VIII, 2374. The cellular tissue between the root of the tongue and the epiglottis is exposed to injuries, physiologically, in the act of swallowing. The mucous membrane of the glosso-epiglottic fossa can easily be lacerated by bones, etc., thus opening the way for various morbid agents. Tracheotomy may be indicated on account of dyspnea if incisions per os do not bring relief. There is a well defined phlegmon of the glosso-epiglottic region. The fossae should always be carefully searched, especially when there is difficulty in swallowing and breathing.

Morgenthau.

Porospermiosis-Pharyngea.

596. DONOS-CORTES. (*El Siglo Medico*, Madrid, April 24, 1898, No. 2313.) A woman of fifty, in poor health, said she had been sick for weeks, with a trouble in the throat which made swallowing difficult. In the mouth

nothing abnormal was seen, but there was fetor of the breath on depressing the tongue; this was found to come from an ulcer on the right of the fauces at the base of the tongue. The tumor was the size of a hazelnut, and looked like an epithelioma (this diagnosis was not confirmed by subsequent microscopical examination), although the age of the tumor and the freedom from adjacent tissue infection were against it. The temporary treatment by Fowler's solution systematically, and resorcin locally cured, much to his surprise. All the appearances were those of psorperma (Daner), or molluscum contagiosum (Paget), or coagulation necrosis (Weigert.) *Hale.*

Observations in Diphtheria.

597. JEROWITZ, H. G. (*Jour. Amer. Med. Assn.*, Oct. 29, 1898.) The majority of cases of diphtheria are mild and affect only the tonsils and pharynx. The exudation with such affections lasts from one to two weeks. Removal of the membrane is useless, as septic infection is promoted by denuding the surface, and, besides, the membrane soon reappears and remains longer than if left undisturbed. The involvement of the larynx is always sudden, and comes as a new attack and not by extension of the diphtheritic process. It takes place in about four per cent. of the cases and is most to be dreaded between the ages of three and fifteen.

Every case observed which was complicated with uremia had postdiphtheritic paralysis. Antitoxin is a valuable remedy, and intubation and tracheotomy will become less necessary when its true worth is recognized.

Scheppegrell.

The Tonsil as Port of Entry of Serious Infections.

598. JESSEN, Hamburg, (*Therapeut. Monatsh.* 1898, VI, 345.) In the meeting of the Hamburg Medical Society, which was held April 19, 1898, a paper with the above title called forth an interesting discussion. Jessen reported four cases in which a general infection seems undoubtedly to have followed a tonsillar affection, although such instances are but rarely reported, while rheumatic affections have often been observed in this connection.

1. Girl with angina; after three days, diffuse exanthema, (Erythema papulatum, Trousseau); the tonsillar deposit

contained staphylococci and streptococci; the blood was sterile, which is, however, also met with in sepsis.

2. Comatose girl; tonsils, free; cutaneous hemorrhages; nephritis: death. Autopsy: surface of tonsils smooth; in the interior, multiple abscesses, as well as in most organs; fresh endocarditis.

3. Girl with angina; deposit disappears after two days. After eight days, pleurisy, pericarditis, pneumonia. In the deposit strophococcus pyogenes, as well as in the pneumonic sputum; no pneumococci or influenza bacilli.

4. Girl with severe angina; deposit contains staphylococcus aureus; the next day pleurisy; in the exudate microbes; pericarditis; pneumonia, death. Autopsy: Tonsils smooth, general pyemia, everywhere the same microorganisms.

The essayist believes that such infections are not at all rare, but that the connection is not often recognized, as the patients usually seek treatment after the angina has subsided. When the surfaces of the tonsils are smooth, the disease may start from abscesses in their interior. The diagnosis may be based on the appearance of the deposit, which is in streaks, not limited to the lacunae.

One instance has been reported of the same microorganisms being found in fifteen cases in a dairy, in all the deposits and on the udder of a cow.

Aside from these acute diseases, certain chronic infections may be transmitted by the same route. These are especially the cases which may make the impression of scrophulosis, in which the morbid agents have been brought from the pharyngeal ring, producing glandular swellings, skin affections, etc. While the anti-scrophulous therapy is almost valueless, removal of the affected pharyngeal tonsil effects a cure; of course, secondary tuberculosis must be excepted.

Rumpf saw angina precede joint affections in 30 to 50 per cent.

Lenhartz stated that the disease may originate also in the surroundings of the tonsil.

Septic angina does not present a typical picture; lacunar as well as phlegmonous tonsillar diseases may lead to it; the dirty appearance of the deposit is possibly characteristic. The examination of the blood during life is gen-

erally negative, while it may be positive after death because of the rapid development of the microorganisms at that time. Facial erysipelas may also start from the pharynx. Fraenkel contended that any inflammatory process down to the larynx may lead to such an infection. He had a positive result in examining the blood of a child suffering from pyemia resulting from angina. The patient recovered, showing that even under the conditions the prognosis is not absolutely unfavorable. Abscesses are often found post-mortem in the interior of the tonsil, while the surface was smooth, without having led to anything further.

Morgenthau.

**Removal of the Epitheliomatous Tonsil by the External Route,
(Pharyngotomy.)**

599. JONAS, A. F. (*Jour. Ame. Med. Assn.*, August 13, 1898. The extensive operation of Czerny and of Mikulicz does not seem necessary in these cases. After a thorough and extensive enucleation of all the cervical glands, whether visibly affected or not, and after a division of the sterno-cleido-mastoid and its divided ends reflected and hemorrhage carefully controlled, with a wide separation of the wound margins by retractors, and the head strongly drawn to the opposite side, and strong traction downward of the arm and shoulder on the affected side being made, sufficient room was obtained for all necessary manipulations.

In both of the cases described, the entire larynx and nasopharynx could be inspected, so that a thorough removal of all affected tissues could be made under direct ocular inspection. In neither case was a preliminary tracheotomy necessary. In the first case the recovery was uneventful, while in the second, the patient suddenly discovered on the third day after the operation that the vision of the left eye was abolished. An ophthalmoscopic examination showed a choked optic disk, which was supposed to be due to embolus, although how the latter could reach the eye was not understood. The patient died three months later from catarrhal pneumonia, without any recurrence of the epithelioma in the throat.

Scheppegrell.

Death Rate in Diphtheria.

600. KASSOWITZ. (*Jour. Amer. Med. Assn.*, July 30, 1898.) The author denounces antitoxin, stating that the published percentages are misleading and that the actual mortality from diphtheria has not diminished in late years as claimed. He cited statistics from Moscow, London, New York, etc., which prove that the number of deaths has not decreased, whatever the percentages may show, while statistics everywhere prove that tracheotomy, primary or secondary (after intubation) is still followed by death in 70 to 90 per cent.; that the number of cases of consecutive paralysis has actually increased, and that renal complications are not affected by the antitoxin, while croup continues its course unchecked by the injections. He even refuses to consider the Klebs-Loeffler bacillus the specific cause of diphtheria, which he says is yet to be discovered. In the cities (Vienna and Paris), in which the mortality is actually lower in recent years, the disease has been of a milder type.

Scheppegrell.

Notes of a Case of Chronic Abscess of the Soft Palate.

601. LAURENS, GEORGE. (*Annales des Malad. des Oeilles du Lar. du Nez et du Phar.* No. 9., September, 1898.) Here is the history of a patient of forty-eight years. Every seven or eight months, without any pain or other discomfort, he suddenly smells an extremely fetid odor in his nose and mouth. Then for forty-eight hours he expectorates small dry and very offensive masses. They increase on pressure on the sides of the neck. The masses have their origin in deep cavities above the tonsils between the pillars of the palate. These cavities were widely opened, curetted and cauterized. The disease was described in 1897 by Lermoyez and Cartaz.

Holinger.

Diphtheria as Viewed by the General Practitioner During Last Year.

602. MCALISTER, A. (*University Med. Magazine*, Sept. 1898.) The author recommends as the most useful preparation for general practice, a product permitting the administration of 1,000 units of antitoxin in from two to four c. c. of serum.

Scheppegrell.

Indications for Intubation.

603. McCLANAHAN, H. M. (*Jour. Amer. Med. Assn.*, October 29, 1898.) The majority of cases recognized early are amenable to treatment by antitoxin. A certain number, however, fail to respond to the remedy. In these cases, if after the end of twenty-four hours a study of the symptoms leads to the conclusion that the patient is not better, then intubation should be done. In all cases presenting any one of the following symptoms prominently, viz: deep epigastric recession with each inspiration, labored and prolonged expiration, extreme restlessness, spasmodic attacks coming on at intervals, or persistent cyanosis, then intubation should be performed. In cases seen late, it would be wise to intubate and administer antitoxin rather than to give the remedy and wait for its effect.

Scheppegrell.

Antitoxin in the Treatment of Diphtheria.

604. MCCOLLOM. (*Boston Med. and Surg. Jour.*, August 18, 1898.) From an examination of the mortuary statistics and from a clinical study of 4,200 cases of diphtheria, the author concludes that the death rate from diphtheria has been reduced to a remarkable degree by the use of antitoxin; that in order to obtain full benefit of this agent, it is important to give large doses early in the course of the disease; that the antitoxin should be frequently repeated until the correct effect is produced on the membrane; that it does not produce albuminuria and does not cause heart affections; that the physician, who does not use anti-toxin in the treatment of diphtheria, fails to do his duty to the patient.

Scheppegrell.

Glossitis in Typhoid Fever.

605. MCCRAE, THOS. (*John Hopkins' Hos. Bulletin*, July, 1898.) After 24 days of normal temperature, the glossitis was the first symptom of a relapse. The blood removed from the tongue in taking the culture gave relief, from which the author concludes that free incision into the substance of the tongue is the best treatment in severe cases. In over 700 cases of typhoid fever treated in the John Hopkins' Hospital, this was the only one complicated with glossitis.

Scheppegrell.

Diphtheria Bacillus No. 8.

606. PARK. (*Medical Record*, July 23, 1898.) A bacillus was isolated from a case in which the clinical diagnosis was "tonsillitis." It was found to be the most virulent bacillus that had ever been examined, which would kill a medium-sized guinea pig in a dose of 1/200 cc.

Scheppegrell.

Rheumatic Pharyngitis.

607. SOMERS, L. S. (*Medical News*, July, 1898.) A rheumatic affection may be the cause of tonsillitis, or rheumatism may result from infection through the tonsil, the latter statement depending upon the recognition of the bacterial origin of disease. The clinical history of two cases is given in illustration.

Scheppegrell.

The Toxin of Diphtheria and its Antitoxin.

608. SMITH, T. (*Boston Med. and Surg. Journal*, Aug. 18, 1898.) A careful review of the subject on the toxin of diphtheria and its antitoxin. While admitting the obscure nature and action of the toxin and antitoxin there is no doubt as to their reality, that we have reached the right path in studying them, and that a continued investigation is only necessary in order to gain better practical results in the combatting of toxic disease.

Scheppegrell.

Peritonsillitis or Quinsy; Cause and Treatment.

609. STUCKEY, J. A. (*Jour. Amer. Med. Assn.*, Oct. 29, 1898.) A study of selected cases has convinced the author that the rheumatic or uric diathesis is the most important factor in this condition. This etiology should not be lost sight of in the treatment. In cases that progress to suppuration, early and free puncture is indicated.

Scheppegrell.

Hemorrhage Following Tonsillotomy.

610. ZIMMERMANN, Milwaukee, (*Archives of Otolaryngology*, Vol. XXVII, No. 4.) The author after describing a case of primary hemorrhage which occurred in his practice reviews the literature and finds it of very rare occurrence.

Capart saw but one severe hemorrhage in two thousand tonsillotomies and in Sajous's Annual of 1891, Vol. IV., only nine cases of hemorrhage are recorded from a collection of twenty thousand cases.

How can the occurrence of hemorrhage after tonsillectomy be avoided?

Tonsillectomy should never be performed in bleeders or where there is a hypertrophy of the left ventricle.

Not when the tonsils are in a state of acute inflammation.

The tonsil should not be pulled out too much between the faucial pillars and no pressure from outside should be exerted toward the instrument.

After the operation the patient should keep quiet, not travel, avoid alcoholics and not eat solid food for several days.

After bleeding ceases the author uses a powder of iodoform mixed with tannic acid to dust on the cut surface.

Compression, digital or with a pair of long forceps, one blade applied to the cut surface, the other on the outside close to the angle of the jaw.

If hemorrhage still persists, remove all clot and make a very careful examination to see whether a single point is bleeding. This may be cauterized by Paquelin's thermocautery or by a thick probe made red-hot.

Grasping the bleeding spot with artery forceps leaving these in place for a while and then make torsion.

Dawbarn devised a purse-string ligature around the bleeding surface, made with four stitches by a large semicircular needle and needle-holder. In desperate cases ligature of the external carotid.

Campbell.

Papilloma of the Tonsil.

611. YEARSLEY, M. (*Laryngoscope*, August, 1898.) At a recent meeting of the Laryngological Society of London, Sir Felix Semon remarked that he had hitherto believed that benign growths of the tonsil were practically nonexistent. Having collected as many instances as possible, the writer has come to the conclusion (1) that true papilloma of the tonsil is uncommon; (2) that other benign growths are comparatively frequent; (3) that the latter are often of inflammatory origin, and connected with enlarged tonsils. Thirty-four cases were collected, of which 21 were examined microscopically, 8 not examined, and 5 of which there is no record. Four proved to be true

papillomata, while the remainder proved to be lymphadenomata or fibromata.

Loeb.

Urticaria; Involving the Soft Palate, Causing Alarming Symptoms.

612. LEDERMAN, M. D. (*Laryngoscope*, September, 1898.) The patient, aet 38, suddenly chilled while taking an ocean bath. Multiform swellings appeared on his body and face, marked difficulty in swallowing; later, these increased. The soft palate and uvula were intensely edematous. Calomel and compound jalap powder were given internally and ice was used locally, and in six hours the symptoms had almost entirely disappeared. The patient claims that he had struck a jelly fish while bathing.

Loeb.

IV.—LARYNX.

Rare Cases of Polypi of the Larynx.

613. BAR, LOUIS. (*Annales des malad. de l'Oreille, du Lar. du Nez et du Phar.*, No. 9, September, 1898.) The first patient is a servant of 65 years, with a fibroma at the anterior commissure of the vocal cords. Removal was not allowed.

2. A seamstress of 35, with the usual symptoms of laryngeal disease, had a fibroma of the anterior third of the right vocal cord of the size of a pea. No operation. The author thinks that it is something different from the "sän-gerknuten" of the Germans.

3. A papilloma of the inter-arytenoid region. It was excised and the base curetted. The hoarseness persists. Later on a tumor, either tubercular or malignant, was seen at the ventricular bands.

4. Cysts of the vocal cords in a girl of 25. She suffers at times from attacks of aphylxia. The site of the vocal cords is occupied by two large bodies, resembling very much two large polypi. No operation being allowed, the diagnosis must remain uncertain.

5. Fibromyxoma, the size of a pea, of the left vocal cord in a man of 35. No operation.

6. A lipoma of the subglottic region was removed with

laryngotomy. The patient was a woman of 25, with marked cyanosis. The microscope showed a lipoma, which is a very rare form of a tumor in these regions. It was of the size of a cherry, and had to be cut in two in order to be removed.

Holinger.

Goitrous Tumors in the Larynx and Trachea.

614 . BAUROWICZ, A., Cracow, Australia. (*Fraenkel's Archiv.*, VIII, 2362.) In February, 1898, the author was consulted by a woman of 21, who wore a canula and had a scar on her neck extending to the sternum along the anterior margin of the sterno-mastoid muscle. She had been operated upon October, 1897, to relieve the dyspnea caused by a tumor, which had been increasing in size for about a year. The left vocal cord stood immovable in the median position. On closing the mouth of the canula, a marked stridor showed the obstruction to lie above the canula. The examination with a mirror from the mouth and from the tracheal fistula revealed a broad-based tumor on the whole left lateral and the posterior walls, filling the lumen of the lower portion of the larynx, so that a very narrow sickle-shaped chink separated the growth from the right wall; it extended to the window of the canula into the tracheal walls. It had a smooth surface, elastic consistency, red color, and a covering of unchanged mucous membrane. With dependent head, an incision was made from the tracheal fistula through the remaining four rings and the cricoid cartilage. The growth was removed with scalpel and scissors. It was intimately connected with the spaces between the tracheal rings and posterior tracheal wall. Microscopically, thyroid gland tissue with slight colloid degeneration was found.

The goitre had invaded the laryngeal cavity from the outside. These growths do not recur. As the growths have a broad base, and are adherent to the wall, it is not possible to remove them entirely by operating. The absence of recurrence speaks against the embryonic theory of their origin. In order to guard against secondary hemorrhage a tampon may be introduced, although Bruns omitted it and was able to discharge his patients on the 21st, 17th and 13th day after the operation.

Painting with cocain is advantageous, especially if the patient should awake from the general anesthesia too soon.

Morgenthau.

Intubation for Spasm in a Child of Seven Months.

615. BONAIN. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 36, September 3, '98.) The tube remained in situ for 390 hours, attempts at removal having been made nine times during 22 days. Recovery. Paper read before the French Soc. of Laryngol., May, '98.

The title reports nearly all there is to be said of interest. It may, however, be especially mentioned that ebony tubes were used, which are not heavy and do not provoke ulceration in the larynx. The intubation was done on account of swelling of the mucous membrane of the cricoid cartilage.

Holinger.

Resection of Larynx.

616. CISNEROS, Madrid (*El Siglo Medico*, No. 2318, May 29, 1898), reports a partial resection of the larynx in a man of 50, physician, who had gradually lost his voice. The palate and pharynx were normal. In the larynx, on the left vocal cord, was seen a reddish swelling, which proved microscopically to be epithelioma, although subjectively there was no cough or dysphagia, nor objectively no ulceration or glandular infection. The whole of the left side of the larynx was excised. Healing was prompt, and six months elapsed without recurrence.

Hale.

The Treatment of Malignant Tumors of the Larynx, the Tongue and the Nose with Arsenious Acid.

617. COSTINIX, A. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 38, September 17, '98.) The author reports three cases of malignant tumors that were treated with arsenious acid. In the first case the result was an apparent cure, such as Cerny and Trunecek have reported. The two other cases were too far advanced. Still there was marked relief. The arsenious acid destroys all diseased tissue. Symptoms of intoxication were never noticed. The pain was very moderate.

Holinger.

Submucous Hemorrhages from the Vocal Cords.

618. GAVEL, J., Lyons. (*Annales des malades de l'Or. du Lar. du Nez. et du Phar.*, No. 10, Oct., 1898.) The hemorrhages from the vocal cords are divided according to their origin into traumatic, dyscrasic, organic, inflammatory and purely mechanical hemorrhages. There are four observations of the author:

1. A case of submucous hemorrhage of the right vocal cord, with two recurrences in a woman singer.

2. The second was a first bass singer of the Grand Theater. He did not suffer very much, and in less than a week was able to resume his work, although at the examination his right vocal cord was found entirely red.

3. Hemorrhage of the left vocal cord in an architect who was suffering from hay fever.

4. In the left vocal cord of a nervous gentleman a hemorrhage occurred while he was drinking. This disease is of minor importance. Recovery from it results in 10 to 15 days. It occurs mostly in singers. In women, menstruation has a certain influence. *Holinger.*

A Case of Anterior Epiglottic Angina.

619. MOLL. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, September 24, '98.) A gentleman of 50 years, who lived a quiet and healthy life, was one night suddenly attacked by a severe sore throat. On examination the tonsils and the pharynx were unaffected. Only the anterior surface of the epiglottis being much swollen and red. In the course of the next few days three small abscesses formed, which were incised, and the patient made a quick recovery.

The author thinks that an epidemic of influenza, which was present at that time, might have been the cause.

Holinger.

Congenital Laryngeal Stridor.

620. STAMM, C., Hamburg-Rothenburgsort. (*Muench. Med. Woch.*, No. 38, September 20, 1898.) Congenital laryngeal stridor, or infantile respiratory spasm, was the name given, in 1892, by John Thompson, to a group of symptoms described by him as a result of observing five cases. It is not mentioned in the common text-book on diseases of children and of the nerves. It resembles

somewhat the laryngo-spasms of rickey children, and has, for that reason, attracted so little attention. Congenital stridor, however, begins either at birth or shortly afterward; while laryngo-spasms never appear in the first month, but generally at dentition. The youngest laryngo-spastic child, of whom Baginsky tells, 3 months old. Rickets are so frequent in children suffering from laryngismus stridulus that most authors assume a causal connection between them. In the cases of congenital stridor there were no signs of rhachitis nor of tetany, with which Loos associates laryngismus. Laryngismus occurs in more or less violent attacks with cyanosis, and, possibly, general convulsions; congenital stridor accompanies inspiration for weeks and months without cyanosis and, generally, without general spasms. There is not complete cessation of respiration, as is usual after the whistling inspiration of laryngismus. The latter is often called forth or made worse by yelling, while the dyspnea is improved or even stopped by it in the other disease. Laryngismus does not occur during sleep; an attack may set in when the child is just awakening; but the sleep is not disturbed by the breathing. In congenital stridor, however, inspiratory drawing-in and stridor are present during sleep. The cause of the congenital stridor cannot be found in the thymus gland, although, in the author's case, there was dullness over the upper third of the sternum; however, neither could the gland be palpated in the suprasternal fossa, as might be anticipated with such great embarrassment of breathing; nor were there any indications of blood and lymph stasis above the gland; nor could the stridor be influenced at all by pressing on the dull part or placing the head in different positions. The author inclines to the opinion that the disease is due to a central functional disturbance, an arrest of development of certain centers of co-ordination of respiration, perhaps near the calamus scriptorius; in which Semon and Horsley discovered the center of involuntary laryngeal movement. He also cites in favor of this hypothesis his frequent observations of a similar, but rapidly disappearing stridor in little children just awakening from chloroform narcosis. Although the prognosis is generally good, the little patient's life may be endangered by gen-

eral convulsions. The dyspnea gradually subsides. Thomson reports a case in which it persisted to the second year. The author's patient improved markedly under phosphorus and cod liver oil after two weeks, and breathed freely after six weeks.

Morgenthau.

Notes on Syphilitic Laryngitis, with Cases.

621. STRAIGHT, H. S. (*Cleveland Medical Journal*, July, 1898.) In the first case, it was a question of syphilitic laryngitis or carcinoma, and in the second, of syphilitic laryngitis or tuberculosis. In both cases the patients strongly denied any primary infection. Both were cured by specific treatment.

Scheppegrell.

Unilateral Laryngeal Edema in the Climacteric Period.

622. UCHERMANN, V. (*Fraenkel's Archiv*, VIII, 2, 287.) A circumscribed edema, usually, however, confined to the skin, sometimes accompanies menstruation. It often is limited to the territory of one certain nerve, usually in the premenstrual period and preferably around the ankles, on the calves, the thighs or in the face (Leopold Meyer, *Menstruation*, Copenhagen, 1890, page 120). It disappears after the flow has begun, or, in amenorrhea, in the postmenstrual period. The urine is normal. The edema may also affect the throat. Bayer has observed edematous swelling of tuberculous laryngeal ulcers during such a period. Similar exanthemata appear in the climacteric period, but are of more uncertain duration—three, four, six weeks or more. They take the different forms of erythema, eczema, urticaria, acne, etc. Signs of irritation of the nervous system, especially of the vaso-motor and trophic nerves, are heat waves, congestions, local sweats, etc. Aside from urticaria, edema is evidently rarer in this period. As the author has never seen a case in the mucous membrane of the throat described, he reports one. A woman of 33 was brought to the hospital, August 13th, on account of dyspnea and dysphagia. She is nervous, has suffered occasionally from nervous cardiac asthma; no cardiac lesion; a few weeks ago she could not continue conversation after a little, and had some pain in swallowing. Edematous swelling of the left ary-epiglottic fold; no fever; no enlargement of lymph glands.

Scarification relieved breathing. A few days later the fold is again swollen to the size of a pigeon's egg; edematous; the same condition on the left side of the root of the tongue, Tonsil is clear. Four leeches on left side on level of the root of epiglottis; salicylate of soda and iodide of soda internally; relief. The tumor reduced to one-half its size; lungs healthy; no tubercle bacilli.

In December only a gelatinous remnant of the size of a pea was seen on the point of the arytenoid process. The tumor increased perceptibly at the time of former menstruation. She spent the next summer in the country, free from all disturbances and from trouble in the throat. Edema of the skin was never present. It is evident that the edema was of angio-neurotic origin from the sudden appearance, the lack of inflammatory signs, its restriction to practically one side, its connection with the menstrual period and its aggravation at that time, its gradual cessation simultaneously with the other nervous phenomena of the menopause, and its final course (no tuberculosis or renal disease).

The author adopts the theory of central nervous disturbance. Angio-neurotic edema may be produced by a vaso-motor spasm (acute pale edema, urticaria), or by vaso-motor paralysis (acute injected edema, chronic edema), impeding or obstructing venous reflux. The mechanical theory does not suffice, as Ranvier has shown that, on ligating the inferior vena cava, edema ensues only in that extremity in which the sciatic nerve has been severed at the time. Edema has, therefore, been explained as due to the vital secretory powers of the small blood vessels, or as the result of auto-infection by fibrinogen of the tissues. It has been found, from experiments, that both the tissues themselves and the congestion have part in the production of edema. It occurs easiest when preceded by hemostasis or anemia of the parts. Barlow-Lazarus refers to the congestion which takes place normally, *f.i.*, in active muscular exercise, in order to remove the products of combustion. If these latter are retarded in their removal, lymph is exuded; this lymph of an edematous part of the body, differing also chemically from normal lymph. If this explanation is correct, says Uchermann, the ultimate cause of nervous edema would be the

action of foreign substances on the tissue; in the same manner as edema is caused by certain articles of luxury and food (tobacco, strawberries, etc.), or by medicines (potassic iodide, ipecac). The nervous character of iodine edema has been pointed out by Avellis (*Wien. Med. Woch.*, 1892), who found in a patient with paralysis of the recurrent nerve, iodine edema only on the healthy side.

Morgenthau.

Acute Dyspnea Caused by Trendelenburg's Tampon Canula.

623. UCHERMANN, V. Christiania, Norway. (*Fraenkel's Archiv*, VIII, 2,292.) In operating for laryngeal cancer the canula, not appearing quite tight, was blown up again, when most violent dyspnea with cyanosis set in. The author thought for a moment of a reflex spasm of the bronchial muscles, but that did not tally with the violence of the attack, which fully resembled acute asphyxia (f. i., in acute laryngeal stenosis). The explanation was found when the experiment was repeated in the closed hand instead of the trachea. As the rubber ball approaches the firm wall it can, on further inflation, only expand upward and downward. It thus protrudes below the point of the canula and its lumen more or less. The rubber bulb used for inflating should be quite small.

Morgenthau.

Intubation Tube Retained in the Larynx for Thirty-Eight Days.

624. WRIGHT, F. W. (*Pediatrics*, Vol. V, No. 10, 1898.) In over 50 intubations this was the only case in which it was found necessary to retain the tube in the larynx for more than six days. A child of 3 years was recovering from measles when it developed dyspnea, which eventually required intubation. Every fourth day it was removed for cleansing, but had to be at once reintroduced, and it was only after the thirty-eight day that it could be permanently removed. Repeated examinations for the diphtheria bacillus proved negative.

Scheppegrell.

Intubation of the Larynx.

625. WRIGHT, W. (*Pediatrics*, Vol. VI, No. 2, 1898.) A careful description of the technique of intubation and extubation. A synopsis of a table of 50 intubations, in-

cluding 31 recoveries and 19 deaths. The average length of time that the tube was in the larynx of those who recovered was $2\frac{4}{10}$ days. In only one case did death occur later than 24 hours after intubation, which indicates that if the patient can be carried over the first $2\frac{1}{2}$ days a favorable prognosis may be expected. For good results, it is imperative that a large dose of antitoxin be given within 48 hours of the inception of the disease, and that at least ordinary intelligent nursing be bestowed upon the patient.

Scheppegrell.

Clinical Exploration of Laryngeal Tuberculosis.

626. DE WEGLENSKI, W. (*Annales des malad. de l'Oreille du Lar., du Nez et au Phar.*, No. 10, October, 1898.) A form for the filling in of facts in an examination of tubercular laryngitis is given.

Hollinger

A Case of Sigmatic Dyslalia.

627. GRANT, DUNDAS. (*Journal of Laryng., Rhinology and Otology* July, 1898.) The patient was unable to produce the hissing sound of the letter "S" for which she substituted the guttural "K." A systematic course of hissing exercises has somewhat improved the condition.

Loeb.

Two Cases of Ludwig's Angina or Sublingual Phlegmon.

628. CASSELBERRY, W. E. (*Journal of Laryng., Rhinology and Otology*, June, 1898.) CASE I. The patient, a man aet 30, had suffered for three days from an intense pharyngitis with high fever, depression and signs of beginning peritonsillar abscess. The velum was oedematous, the uvula swollen and elongated, the tonsils small and without exudate.

A puncture was followed by the evacuation of pus and the pharyngeal feature of the case terminated. Five days later a swelling appeared in the front of the mouth beneath the tongue, which was crowded upward against the palate. Respiration was slightly stertorous, deglutition painful, swelling bilateral and sublingual induration "woodenlike." Two exploratory punctures were made without finding pus. He became some better but ten days later symptoms of edema of the larynx and lungs appeared, and the patient died without any discovery of pus being made.

CASE II. Mrs. C, aet 60, was suddenly attacked with an

acute inflammation of the floor of the mouth, which rapidly increased, forcing the tongue upward and backward, so that the mouth could be neither opened nor shut, deglutition was impossible, and respiration dangerously impeded. Within a week fluctuation appeared in the vicinity of the right sublingual salivary gland, which required the merest puncture to evacuate the pus. The urgent symptoms rapidly subsided, although the patient made a tardy recovery.

Loeb.

A Case of Agmination of Secretion on the Vocal Cords at the Seat of Election of Singers' Nodules.

629. GRANT, DUNDAS. (*Journal of Laryngology, Rhinology and Otolaryngology*, July, 1898.) A Singer, aet twenty-one, complained of want of timbre, hoarseness and discomfort in the upper part of the throat after singing for a short time. A thick secretion of almost milky whiteness, was found at the junction of the anterior with the middle thirds of the vocal bands. The secretion greatly diminished after relief was afforded to abnormal nasal conditions.

Loeb.

V.—MISCELLANEOUS; THYROID GLAND; ESOPHAGUS, ETC.

A Few Considerations Regarding Climatic Changes and Pulmonary Tuberculosis.

630. BONNEY. (*Jour. Amer. Med. Assn.*, Oct. 15, 1898.) The warmest advocates of the serum therapy recognize the fact that this treatment is limited chiefly to early cases. It is precisely such cases that have been demonstrated to respond more readily to climatic influences.

Scheppegrell.

Partial Thyroidectomy in Eight Cases of Graves' Disease.

631. BOOTH, J. A. (*Medical Record*, Aug. 13, 1898.) Of eight cases operated, five were cured and one died. In the successful cases, the goitre first diminished, next the nervous symptoms disappeared, then the pulse-rate and vaso-motor phenomena improved, and the exophthalmos last of all.

Pathologic and clinical evidence is in support of the view

that the symptom complex is the expression of a primary neurosis multiplied by a secondary glandular intoxication. As the ultimate cause of disease of the gland is still a matter of speculation, and as a mortality of 7 per cent. after operation is reported, this cannot be highly recommended as a routine plan of treatment. Sudden death may occur in the course of or soon after the operation, and has not as yet received a satisfactory explanation.

Scheppegrell.

Exercise in Exophthalmic Goitre.

632. COE, H. W. (*Western Medical Review*, July, 1898.) As judicious exercise and resistance movements have been found useful in heart disease, the author has also applied this in exophthalmic goitre. In the case reported, there was exophthalmus, enlargement of the left lobe of the thyroid, and tachycardia, the symptoms rapidly ameliorating under this treatment. *Scheppegrell.*

Prophylaxis in Nose and Throat Diseases.

633. COULTER, J. H. (*Jour. Amer. Med. Assn.*, Oct. 29, 1898.) An interesting article on prophylaxis in nose and throat diseases by correcting nose and throat abnormalities and instituting hygienic measures. *Scheppegrell.*

The Surgical Engine and its Use in Bone Surgery.

634. CRYER, M. H. (*Medical News*, January, 1898.) A résumé of the advantages of the surgical engine in bone operations, with a description of a special apparatus. The importance of having the velocity of the cutting tool of from four to six thousand revolutions per minute is especially referred to.

[The velocity is an important point. Many of the motors, especially those with dynamo combination for operating the electro-cautery and electric light, have a speed far below the requirements of skillful surgical work, which probably accounts for the dissatisfaction frequently complained of in their use. *Scheppegrell.*] *Scheppegrell.*

The Modern Treatment of Tuberculosis.

635. DENISON, C. (*Jour. Amer. Med. Assn.*, Sept. 24, 1898.) A tuberculosis treatment-table; approximate estimate of results:

Proportion of benefits due to	Range of per cent.	Average per cent.
1. Climate and change, involving mental influence	15 to 45	30
2. Exercise and outdoor life	10 to 20	15
3. Good feeding, special dieting and attention to alimentary canal	10 to 20	15
4. Medical supervision and medical treatment	5 to 25	15
5. Inhaling, local medication and surgical interference	5 to 25	15
6. Specific medication, based upon antitoxin treatment	0 to 20	10
Totals per cent.	45 to 155	100

The adaptation of all methods to the needs of a given case is a preferable plan. The seasonable change of residence to a well-selected high-altitude climate, with its dryness, sunshine, possibilities of outdoor life, and its stimulating qualities, gives the best possible resistance to the advancement of consumption. Exercise is most essential and necessary to promote both cell activity and the needed mechanical distention of the air-cells. Local treatment and proper inhaling methods bear important relation to exercise, cell stimulation and the climatic effect by the high altitude method. It is a mistake to overwhelm the body with frequent injections of undetermined animal serum, thereby producing either a severe reaction or a possible cumulative toxemia.

Scheppegrell.

The Use of Animal Toxins in the Treatment of Inoperable Malignant Tumors.

636. FOWLER, G. R. (*Amer. Jour. of Med. Sciences*, August, 1898.) After a careful review of the literature of the subject on the use of *stereptococcus erysipclatis* and the mixed toxins of *streptococcus erysipclatis* and the *bacillus prodigiosus*, the author reports a case in his own experience treated by the mixed toxins.

In a patient who had been operated upon by external pharyngectomy for a melano-sarcoma of the left tonsil and fauces, a recurrence developed four weeks later and further operative interference being deemed inadvisable, treatment by injections of Coley's fluid was instituted. A very decided reaction followed each injection, which was made deeply into the left arm. Massage was employed after each injection so as to disseminate the injected ma-

terial rapidly. A slight chill followed each injection and a rise of temperature to 103° F.

At the end of three days, the new growth in the lateral pharyngeal wall had disappeared, and the frequency of the injections were lessened. Three months afterward no trace of the disease could be found. Two years later a recurrence took place, and antitoxin treatment was again recommended, but the patient failed to report to the hospital. He died afterward from extensive sarcomatous inflammation of the structures of the neck on the side corresponding with the original disease of the tonsil.

Scheppegrell.

Solution of Gelatin as a Hemostatic.

637. GARCIA (*Gazette of Medica de Mexico*, May 1, 1898.), after exhaustive experiments to confirm those of Dastre and Floresco, thinks that a sterilized 5 per cent. to 10 per cent. solution of gelatin in water (or better still in a decinormal salt solution) is of the greatest value, and he has used it many times to stop an epistaxis that otherwise would require complete plugging before it yielded. He submits the following conclusions:

1. It is a hemostatic of the first order.
2. It coagulates blood from a wounded vessel, which coagulation is very rapidly organized.
3. It thereby facilitates primary union.
4. It is applicable in all hemorrhages where it can be brought directly into contact with the bleeding point. This holds true of epistaxis, cutaneous wounds and metrorrhagia.

Hale.

Painful Dysphagia Evidence of Syphilis.

638. GAREL. (*Semaine Med.*, July 6, 1898.) Persistent dysphagia should always be considered suggestive of syphilis. It is frequently the first and only symptom recognized by the patient. The pain vanishes after 48 hours treatment with potassium iodide unless it is due to incipient cancer or tuberculosis of the throat, which can be thus differentiated.

Scheppegrell.

A Note on Concurrent Carcinoma and Tuberculosis.

639. HAMILTON, W. F. (*Montreal Med. Jour.*, July, 1898.) While there is a degree of exclusiveness between the diathesis of carcinoma and tuberculosis, recent sta-

tistics do not show this to be so antagonistic as Rokitsansky's teachings would indicate. In the case reported, the autopsy showed extensive carcinoma of the esophagus with tuberculosis of the right lung and pleura. The pathologic report of the Royal Victoria Hospital up to date shows three other cases of concurrent cancer and tuberculosis:

CASE 1. Male, aged 76. Carcinoma of the tongue; bilateral lobar pneumonia, chronic interstitial nephritis; left pulmonary tuberculosis; rheumatoid arthritis.

CASE 2. Male, aged 85. Primary carcinoma of the urinary bladder; secondary carcinoma of the prostrate and urethra; chronic interstitial nephritis; indurative right pneumonia with progressive apical tuberculosis; left apical obsolescent tuberculosis.

CASE 3. Female, aged 59. Adenocarcinoma of the esophagus; stricture (gastric operation case); tuberculosis of the right apex, caseous peribronchial glands; chronic indurated pneumonia. *Scheppegrell.*

Antistreptococcic Serum.

640. HILL, W. B. (*Jour. Amer. Med. Assn.*, October 1, 1898.) Any disease which is caused by streptococcic infection is certainly benefited, if not cured, by antistreptococci serum. Where the serum is reasonably fresh and hermetically sealed, having been properly prepared and inspected, it is never an element of danger, and may be used with impunity. Further investigations, however, are needed in this direction. *Scheppegrell.*

Clinical Facts.

641. KOCH PAUL. (*Annales des Malad. del Oreille du Nez du Lar et du Phar.* No. 9, (September, 1898.) An old rag peddler came to the office drunk. He complained of a foreign body in his oesophagus. An English probe could be introduced as far as the lower third of the oesophagus. The doctor tried to push the foreign body down into the stomach and apparently succeeded, but could withdraw the probe only with difficulty. When he finally succeeded, a piece of ham was hanging on the probe. It had worked like a cork-screw.

(2) An otherwise healthy man of 60, after influenza, was suffering from attacks of dyspnoea. They were espe-

cially bad during the examinations, so much so, that once a very hasty tracheotomy had to be made. The vocal cords were in the position of phonation, and the author draws the attention to the controversy now going on between Krause in Berlin and Vernon in London, whether this position was the result of a spasm or paralysis.

(3) A drunkard during a nightmare bit his tongue so that it was full of ulcerating impressions of the teeth.

(4) Two children suffered from coryza, the nature of which was not recognized till one child died, and the other was cured after anti-toxin injections.

Holinger.

A Case of Thyroidectomy.

642. KRUSEN, W. (*Therapeutic Gazette*, August 15, 1898.) A woman, aged 53, had suffered for three years from gradual enlargement of the right lobe of the thyroid gland, which reached the size of an orange. It had caused various disturbances, such as venous congestion of the face, faintness, insomnia, hoarseness, and an irritating cough, evidently due to pressure on the recurrent laryngeal nerve.

The gland was successfully enucleated. During the operation there was interference with the respiration produced by the tugging on the trachea during the enucleation.

For forty-eight hours afterward the pulse was weak and quite rapid. This operation is sufficiently dangerous to make surgical interference a subject of earnest consideration.

Scheppegrell.

Obstruction of the Oesophagus.

643. (*Medical Record*, July 23, 1898.) The patient has suffered from infancy from a contracted oesophagus, which resulted from swallowing concentrated lye. Fragments of boiled potatoes had become lodged in the oesophagus, this preventing the passage of even water through the canal. Teaspoonful doses of peroxide of hydrogen were administered, and the effervescence following its administration successfully resulted in the dislodgment of the obstruction.

Scheppegrell.

Hygiene vs. Drugs in the Treatment of Pulmonary Tuberculosis.

644. MINOR, C. L. (*Journ. Amer. Med. Assn.*, October 29, 1898.) Air and food are the drugs to which we can

always trust: they will never deceive us. It would be well to throw away two-thirds of our medicine bottles, and use the remaining third less frequently, carrying out a hygienic plan of life, stimulating the appetite by nature's appetizer—air and exercise—which are alone permanent in their results, and which are as superior to gentian or quassia as sunlight is to darkness.

Scheppegrell.

Koenig's Symptom in Meningitis.

645. NETTER, DR. (*Berl. Klin. Woch.*, No. 40, Oct. 3, 1898.) D. Netter looked for this symptom in many cases of meningitis. It consists in the impossibility of completely stretching the gently flexed legs of the patient when in a sitting posture, while the limbs are fully relaxed when he is lying down. It was lacking but five times in forty-six cases. It has not been observed in other diseases.

Morgenthau.

The Tuberculin Test in Cervical Adenitis.

646. OTIS, E. O. (*Medical News*, July, 1898.) A one-per-cent solution of Koch's original tuberculin was used as the test, one to five miligrams being the most satisfactory dose. If from six to twenty-four hours after the injection, there occurred weakness, sensations of heat and cold, general malaise, nausea, anorexia, severe headache, pain in the back and limbs, a feeling as if they had the "grippe;" and these symptoms were sharply defined both in their beginning and ending, a reaction was considered to have occurred.

Of twenty-nine cases tested, there were eighteen positive reactions and two doubtful ones. The majority of the reactions occurred in cases in which the enlarged glands had existed six months or more. This corresponds with the general opinion that tuberculous cervical glands are of slow growth and long duration. It was found that there was no appreciable danger when the diagnostic agent was applied in a moderate dose.

Scheppegrell.

External Oesophagotomy for Impacted Foreign Body.

647. POWERS, C. A. (*Boston Med. and Surg. Journ.*, July, 1898.) In the first case a large bone became fixed in the oesophagus of a man of 50 years. All attempts to remove it by the natural canal failing, an external oesoph-

agotomy was performed, and a triangular bone of one-fourth inch in its greatest length was removed.

In the second case, a child two and a half years, a toy wheel had become impacted in the throat. Fluoroscopic examination revealed the wheel just above and behind the episternal notch. It was removed by external oesophagotomy.

Scheppegrell.

Antitubercle Serum (Paquin) in Tuberculosis.

648. PRIOLEAU, W. H. (*Journ. Amer. Med. Assn.*, September 1898.) The antitubercle serum is nearer a specific for all kinds of tuberculosis than any other treatment. It is most valuable in pure unmixed tuberculosis; that is, tuberculosis uncomplicated with some infection. It should be used in the pretuberculous or incipient stage, and in the beginning of the second stage. It is of little benefit where the daily rise of temperature is to 102 degrees F. Given by the rectum, the results are equally as good as when given hyperdermically, and never causes unpleasant symptoms, which are occasionally produced when the serum is used hyperdermically.

Scheppegrell.

Life History of the Bacillus Tuberculosis in Its Relations to the Treatment by Tuberculin.

649. REYBURN, R. (*Journ. Amer. Med. Assn.*, October 1, 1898.) The author believes that the investigators of the bacillus of tuberculosis are working in a wrong direction. Tuberculosis has always been cured in one way, viz.: by improving the hygiene and the general health, and how the injection into the system of a concentrated extract of the poisonous materials elaborated by the bacilli can do this, he is unable to discover. He believes that little hope of a cure of tuberculosis can be expected by this means.

Scheppegrell.

The Serum Treatment of Pulmonary Tuberculosis.

650. RICHARDS, G. L. (*Atlantic Med. Weekly*, August 6, 1898. The cases were treated with Mulford's serum. The author believes that in the main the results will be disappointing, especially in that large class of cases that must work while under treatment.

Scheppegrell.

The Adirondacks in Winter for Tuberculous Patients.

651. SNOW, S. F. (*Buffalo Med. Journ.*, April, 1898.)

There are locations in the Adirondack Mountains where many tuberculous patients may find the climatic and physical environments required. Patients do equally as well in fall and winter, and gain more than in summer months. The article concludes with a report of several cases, which were markedly benefited by the climate of these mountains.

Scheppegrell.

Affections of the Upper Air Passages in Women with Uterine Disease.

652. STRAIGHT, H. S. (*Cleveland Journ. of Med.*, March, 1898. Uterine disease in women is a predisposing factor in affections of the upper air-passages, and unless this is corrected, cure of the latter is improbable. Every one who limits himself to a specialty, should first have extensive experience in general medicine, in order to appreciate the influence of diseases of other parts of the body on the upper respiratory passages.

Scheppegrell.

Three Cases of Trifacial Neuralgia of Dental Origin, Unaccompanied by Toothache.

653. THORNE, W. M. (*Occidental Med. Times*, May, 1898.) In all cases of facial neuralgias, the teeth should be thoroughly examined, and many obscure and unexplained cases would be cleared up. This is illustrated by the report of three cases.

Scheppegrell.

Climatic vs. Serum Treatment of Pulmonary Tuberculosis.

654. WAXHAM, F. E. (*Journ. Amer. Med. Assn.*, Oct. 15, 1898. Until we have more light to guide us, and are more fully convinced of the utility of the serum treatment of tuberculosis, we should take advantage of climatic treatment which has been fully tested and seldom found wanting.

Scheppegrell.

The Teaching of Singing to Deaf-Mute Children who Have Preserved a Part of Hearing.

655. X. (*Rev. hebdom., de Laryngol. d' Otol., et de Rhinol.*, Sept. 10, 1898, No. 37.) The teaching of singing to deaf-mute children who have preserved a part of hearing. Its use for orthophonia. General considerations about the main causes which make the speech of deaf-mutes imperfect and about the means of improvement.

Here are the conclusions derived from this paper:

1. The oral method of instruction of deaf-mute children teaches them to speak but their speech is too monotonous and disagreeable.

2. The causes of this are due partially to idiotism or to diseases of the naso-pharynx, partially to faults of the methods of teaching.

3. Idiots have to be treated according to Seguin-Bourneville. The others according to general surgical methods.

4. The teaching has been modified according to the intelligence and the standing of the child whether it is advanced or a beginner.

5. The author with advanced scholars tried to study some singing and was in a few months gratified with very encouraging results.

Holinger.

REPORT OF THE FOURTH ANNUAL MEETING OF
THE AMERICAN LARYNGOLOGICAL, RHINO-
LOGICAL AND OTOLOGICAL SOCIETY.

HELD AT PITTSBURG, PA., MAY, 1898.

Address of the President, W. H. Daly, M. D., Pittsburg, Pennsylvania.

GENTLEMEN: I have much honor and pleasure in bidding you a hearty welcome to our city. I am sure you will all experience an agreeable surprise, on this your first visit here since the just reputation of Pittsburg being a vast manufacturing centre, has also made it to be regarded, as only remarkable for that distinction, but you will, notwithstanding, also find other things of vast proportions, that will appeal to your higher esthetic senses.

Here we have hundreds of acres of public parks, just now presenting an unexcelled vernal beauty of hill, and dale, and vista. The public conservatory of plants, a present from a generous citizen, Henry Phipps, is equal to the best in the country; and Carnegie Music Hall, Library and Museum, a gift of the noble Pittsburger whose name it bears, is in keeping with the most liberal expenditure, and advanced taste of this wonderful age. Without overstepping the bounds of modesty, we may say Pittsburg, therefore, like good old wine, "needs no bush," and while you have brought us rich presents of scientific value in learned lore, as indicated in the charming programme before us reaching as it does from our distinguished confreres Lennox Browne of London, to Massei, Naples, with other learned lights in our profession from the great cities of our own land. We, with grateful hearts, your Pittsburg members, through me, thank you deeply for having honored us. We are twice honored, in fact as well as in sentiment, for it was in this city, two years ago, that the older national organization of laryngologists, which we all revere, for its high scientific work, met, with just the same number of papers to be read and discussed, viz.: thirty-four, and also, with your present

speaker as its president. Truly Pittsburg has been honored, and your speaker placed under a debt of gratitude, for the kindest partiality, and consideration, that any man can ever receive from distinguished confreres, whose names are household words, in all the higher planes of thought, in laryngology, rhinology, and otology. What more can I say, than to express a personal pride to you in being, as you are well aware of, unsolicited on my part, called to the office of your president? This honor is all the more touching, since the membership is largely made up of the young men, whose names are not only the glory and pride of laryngology, but whose writings and discussions are read with avidity, that speaks without saying it, that they are of the highest scientific and analytical value.

Now, gentlemen, if I have seemed to speak to you with much freedom of commendation, I can only say as one of the older laryngologists, "Yet we are only a trifle older, but not better soldiers," and we are older and younger as one—proud and determined to carry onward our lines of advance, wherever we are placed, so that the coming unfolding of the twentieth century, will find that we, too, have a right to our names high upon the roll of honor, for work well done, for studies well prosecuted, and for solid results in the preservation of human health, even though our work be done, unheralded by the blare of trumpets, or without the knowledge of the great outside unthinking world, who look alas, too often, upon the Medical Man, as someone whose aid is sought to enable the patient to indulge in habits, excesses, and exposures, not meant for thinking human beings; but if we have any doubt as to whether modest scientific labor is unrewarded, let us all remember that dear good man, Dr. Wilhelm Meyer, of Copenhagen, Denmark, whose close friendship it was my esteemed privilege to enjoy through many years previous to his death. His life was pure, his mind was that of a deep thinker, yet his manner as gentle as a child's.

I once heard Sir Morell Mackenzie say at a banquet of laryngologists in Denmark, that before Newton lived apples had fallen to the ground, and before Wilhem Meyer lived pharyngeal adenoids had existed, but the significance of these facts awaiting an interpretation by two great minds.

Wilhelm Meyer literally died in the harness, from pneumonia, contracted from exposure in the damp tombs and crypts of Italy, where he had gone in his old age to study afresh among the tombs of the ancients, the evidence of pharyngeal adenoids as depicted by the separated lips of the sculptured images of the dead of past ages.

A letter just received from his aged widow, now residing in Venice, is filled with grateful appreciation of the spontaneous out-flow of money from the profession, of the greater civilized nations, which culminated in the erection of a monument to the memory of Wilhelm Meyer in his native city. I am proud for America, that her sons in medicine contributed most nobly, and I am also happy that I, as president of the older national body of laryngologists, set the work on foot, by appointing a large and able committee, in every city in America, headed by Dr. D. B. Delavan of New York, Dr. M. B. Ward being sub-chairman of the Pittsburgh committee. They more than fulfilled the best results that I promised for them to Felix Semon, and others in London, and Denmark, who had there, this sacred office in hand. Dr. Delavan's labors were considerable, covering, as they did, our entire country, and they were well and cheerfully done, as he, too, was a loving friend of the dead master.

The work in our several special lines has been so vast and efficient in the past year, that it is quite impossible for me to touch upon it in even a passing comment. A mere index of it would take hours to read, and I forbear owing to the mass of excellent work now before us. America, however, as usual has a large share of the solid practical advance to her credit.

While we meet in the peaceful avocation of science, we are so small an integral part of a vast and mighty nation, that we scarcely see anything here to remind us of the clash, pomp, and circumstances of grim war. Yet I am sure that others here, possibly all, having proud patriotic motives like myself, have placed themselves on call from their country, should they be needed for the good of the service and the nation.

The speaker, being probably the oldest here, had experience from the first to the last of the war for the Union, and knows only too well its exposures and trials, but

should he or any of us be needed, we are ready to go and do our duty wherever we may be of the most efficient service to our country's flag and the cause of freedom. In the meantime, while others of our countrymen are now carrying the banner, and impatiently awaiting the order to forward! march! let us improve our qualifications, by earnestly listening to the bright scientific essays that are to be read and discussed, and I now to that end declare this our Fourth Annual Congress open, and bid you Godspeed and much mental benefit.

Exhibition of Cases.—Dr. Charles W. Richardson, Washington, D. C.—I have a case that came to me about three years ago, of affection of the cuticular surface of the auricle. This disease affected only the cuticular surface, then there was complete destruction of the surface of the auricle. The gentleman who contracted the disease was originally on the Guatemalan-Mexican Boundary Commission, and he told me that this disease was very prevalent in the province of Petan in Guatemala, and affects only the auricle. The case excited my curiosity, and I had a bacteriological examination made of the diseased tissue, and its specific bacillus was found the bacillus that caused this disease. It is similar to the disease known as pouton dediable, which exists in India and in the Nile region, but in these regions it is not limited to any particular part of the body. It was very difficult for me to gain much information about this disease. I appealed to the Guatemalan minister, and he put on foot an investigation concerning this disease, but the doctors, even in this region, know very little about it. My patient returned to Guatemala and promised to send me some information. I will show one of the photographs of one of the characteristic lesions after the disease has produced complete destruction of the cuticular surface of the auricle. It is a peculiar fact that this disease in this region only affects the cuticular surface of the auricle. I arrested the progress of the disease in this gentleman with the use of bichloride of mercury, which kills the bacillus. The cuticular surface of the auricle is now in normal condition. I saw him a week ago (photograph exhibited). Dr. Theobald Smith, late of Washington, now of Harvard Medical School, made the

examination for me, and I received from him a few days ago a letter in which he states that he has slides of tissue and drawings of bacillus.

I report the case briefly at the present time, and will publish the same in full later. I report the case as a matter of original research, the bacillus of this disease never having been found before.

Report of Rhinolith Removed, by Dr. J. F. Hill, Waterville, Me. (Abstract.)

For twenty-five years, a female patient, aged sixty years at time of examination, had been afflicted with a profuse offensive discharge from the anterior and posterior nares. She had been treated for what was supposed to be nasal catarrh, and was informed that her disease was incurable. Symptoms of aural disturbance appeared, together with epiphora of right eye and epistaxis. Severe headache of daily occurrence was a prominent manifestation.

On examination the author found the right nasal passage occluded with granulation tissue, and what appeared to be a grayish substance nearly filling the posterior nares. The foreign element was removed under ether anesthesia with an ordinary lithotrite. It proved to be a rhinolith weighing 275 grains.

The inferior and middle turbinates were much wasted and ulcerated. Antiseptic after-treatment resulted in a complete cure of all symptoms.

Discussion.—Dr. John O. Roe, Rochester, N. Y.:—Several years ago I published a case in which I removed a rhinolith, weighing about three drachms. The patient, a young lady about eighteen years of age, had had a fetid discharge from the right nostril for about six years. On exploring the nose for the cause of this discharge, I found it completely obstructed by what appeared to be a movable body. On dilating the nostril and passing a slender curved instrument behind this substance, I succeeded in removing it unbroken. It occupied the central portion of the nostril about one inch from the anterior meatus. On examination it was found to be composed largely of phosphate of lime.

An interesting point in regard to this rhinolith was that a section through the center showed that the nucleus was

a pledget of cotton, which doubtless had been introduced into the nostril several years before.

Dr. Dwight L. Hubbard:—Dr. Roe's case reminds me of one of a school teacher who came to me suffering from nasal stenosis. An examination revealed the presence of a rhinolith about one-half inch wide and two lines thick. I removed it without difficulty. The nucleus was a pledget of cotton which had been placed there some five years previous by a physician with whom she had been treating for some catarrhal difficulty, and never removed.

Dr. Price Brown, Toronto:—I had a case some years ago from which I removed an exceedingly large rhinolith. Eighteen years previously, the patient had received a severe blow on the nose, fracturing the nasal process of the left superior maxillary bone. Ever after she had nasal trouble. On examination, I found a rhinolith which was so large that it was impossible to remove it entire. It had to be broken up into fragment. I imagined the rhinolith to be formed around a small piece of bone left in the cavity after the original fracture, but upon a careful examination, I found that the nucleus was a little round button.

Dr. L. C. Cline, Indianapolis, Ind.:—I had a case of rhinolith in a boy some eight years of age, who was referred to me for some catarrhal trouble. On examination I found a rhinolith perhaps three-quarters of an inch in length, and a little over half an inch wide, and probably about three lines in thickness. I removed it with a pair of forceps, and in the rhinolith I found a piece of rubber tube that I supposed to be the nucleus. One other case I operated on was a young man about 19 years of age. The rhinolith was over three-quarters of an inch in length, and so large that I had to break it up in pieces with a stout pair of forceps before I could remove it.

Dysphonia—Relief with the Use of the Galvanic Current. By T. C. Christy, M. D., Pittsburg, Pa. (Abstract.)

Dysphonia, or phonasthenia, is a relative term; a condition arising from the acute and chronic affections of the larynx and trachea, generally associated with cough or pain. The observer thoroughly familiar with the natural healthy mucous membrane protecting the upper respira-

tory tract, should study carefully the inter-arytenoid space, the glottis and subglottic space, with regard to the changes induced by the severe inflammation of these parts. The three classical cough centers are the inter-arytenoid space, the posterior wall of the larynx, and the spur at the bifurcation of the trachea.

Pain is referred to the larynx proper, and is due to the forcing of the air through the narrow glottis from below—it being an admitted fact that the inferior surfaces of the true cords are more exquisitely sensitive than the superior surface.

The subglottic space is the narrowest part of the larynx, and all pathological changes occurring in this space tend to stenosis, and so alter the relative proportions as to modify the resonance of the voice and interfere with phonation and respiration.

The two symptoms characteristic of laryngeal inflammation are dysphonia by intact true cords, and the short, frequent cough without any secretion, which is painful to hear and witness. Involvement of the trachea causes an additional symptom of weight or pressure in the windpipe, with pain and distress over the episternal notch; a constant symptom radiating down the central part of the sternum, and frequently to one or both sides of the upper chest.

Treatment is sought for relief of pain, cough and dysphonia. The voice may be quite clear in the morning, grows husky and raucous with the approach of evening, when the patient speaks with increased effort, or is aphonic.

The treatment requiring surgical measures, such as intubation, tracheotomy, and removal of growths, were not considered.

The dysphonia in professional voice users is of frequent occurrence, and is an interesting study; for its relief the writer employs the constant current, the results attending are noted in a series of cases with these conclusions:

The galvanic current, as a curative agent in laryngeal and tracheal affections, is—

- (a) Easy of application.
- (b) Soothing and agreeable to the patient.

- (c) Relieves the congestion, pain and irritation.
- (d) Does not excite pain or spasm of the glottis or trachea.
- (e) Relieves the swollen and lymphatic glands.
- (f) Cures more promptly than any other agent.
- (g) Patients recognize its value and return regularly for its application.

Discussion.—Dr. Robert Levy, Denver, Colo.: I think the Society owes a vote of thanks to Dr. Christy for his very excellent paper. It is not my purpose to say much about the treatment of dysphonia in general, but just a word in regard to the beneficial effects of the galvanic current in dysphonia, particularly in the case of the theatrical profession, in which case quick results must be effected. We must produce immediate results to satisfy our patients. I wish to call particular attention to that form of huskiness, or hoarseness, which often occurs early in cases of tuberculosis. I contend that this symptom is of great value from a diagnostic point of view. Anemia of the larynx and a slight huskiness of the voice, in connection with the pulmonary symptom, is a diagnostic symptom of exceeding value. I think, also, the hoarseness or huskiness of incipient tuberculosis may be caused by or dependent upon a slight infiltration of the aryte-noid, and this also has a diagnostic value, but of course we must not conclude that this infiltration is necessarily tubercular, and it must be considered in connection with other tubercular symptoms. It is rare that we find patients, or even healthy individuals, whose larynges do not show some infiltration from chronic catarrhal laryngitis. The huskiness dependent upon this condition may not be noticeable to the patient, unless a singer or an actor, but in all cases of suspected tuberculosis, the physician should not let this diagnostic symptom be lost sight of.

Dr. E. E. Holt, Portland, Me.: I think the discussion is in regard to the continuous current. As the Doctor was reading his paper I recalled a patient I had some time ago, a lady, who had difficulty with the voice, due to an enlargement of the thyroid gland. She consulted me because she was not able to use her eyes. I examined her eyes very carefully, but could find no abnormality there,

but I applied the continuous current. She received so much benefit from it that she insisted upon returning, and to my surprise, the enlargement of the thyroid gland began to diminish. Although she had been under the treatment of competent physicians for that trouble, she insisted upon returning to me for my treatment. I only mentioned this to show the value of the continuous current. I find it useful not only in preachers and those who use their voice, but also in difficulties of the eyes. I have been able to produce benefits by the use of the current, which I have not been able to produce in any other way.

Modern Possibilities in Chronic Catarrhal Deafness. By Sargent F. Snow, Syracuse, N. Y. (Abstract.)

After reporting in detail three of his cases that gave an history of from 10 to 21 years' partial deafness, and had been under his care from three to six years, showing a gain in hearing power of from 16 to 276 inches, Dr. Snow went on in part to say:—

In these chronic cases we are often taught that if, after inflation, the hearing be improved, or after a course of treatment by generally accepted methods for six weeks, the patient shows no material benefit, the case is hopeless, and it is wrong to encourage him to continue longer. With this point we could take issue, for, in most chronic cases of catarrhal deafness, a six week course of treatment, such as cleansing the nasal passages by an alkaline spray, inflation of the ear, or the introduction of medicated vapors through the Eustachian catheter, will not, to much extent, improve the hearing power; whereas, a thorough removal of pathological conditions within the nose and adjacent cavities, followed persistently from month to month, and if necessary from year to year, by proper stimulating vapors through the Eustachian tube to the middle ear will, in a good percentage of cases, tone up the parts and bring, if not a complete cure, happy results.

The question does not seem to be so much whether we have an atrophic or hypertrophic condition, *but did* the deafness primarily occur as a catarrhal inflammation, or is there so much fixation in the ossicles as to *preclude* a

possibility of relief except through operative procedures?

Many practitioners are opposed to the treatment of deafness in particular and catarrhal affections in general.

This influence is felt in the families, and in those cases where prompt, energetic measures are imperative, may become pernicious. Their opposition is honest, and comes from the unfavorable prognosis given by authorities for whom they have great respect. *We maintain* that the *conclusions* of these *authorities were based on* experience obtained under auspices much less favorable than present: their *every effort* on the ear was hampered by recurring catarrhal inflammations which to-day, we can in a great measure control.

Modern Possibilities in Chronic Catarrhal Deafness.—

Discussion.—Dr. E. E. Holt, Portland, Me.:—I think the Society owes a vote of thanks to Dr. Snow for his paper, as this subject is not generally considered a very inviting one upon which to write. In taking into consideration whether or not this class of patients can be benefited by treatment, I am guided usually by whether or not they are made worse by a cold. If a case of chronic catarrhal inflammation of the middle ear is not affected by cold in the head there is, in my experience, but little chance of improvement by treatment. There is a class of patients that offer no encouragement, and in deciding upon these cases we must take into consideration the family history and hereditary tendencies. I have in my mind a family living in my city, all of them became deaf, and they do not suffer from the ordinary symptoms of catarrh, and any member of this family is not made worse in hearing by a cold in the head. I think Dr. Snow's suggestions are very valuable, because most physicians discourage any attempt to benefit patients affected with catarrhal deafness, simply because some of these patients are known to be incurable. I think in the light of modern treatment, that many of these cases can be benefitted, can be made to hear better. I did not notice that the Doctor said anything about galvanism in his paper. I think if he adds that to his treatment he will be able to help some patients whom he would not be able to improve in any other way.

Dr. James F. McKernon, New York, N. Y.: I would

like to ask the Doctor about the conditions of the tube previous to the beginning of the treatment. Was there any stenosis whatever?

Dr. S. F. Snow, Syracuse, N. Y.: There was no permanent protracted stenosis in either one of these cases, but I have had several other cases where there was a good deal of stenosis, and I had to stretch them. These particular cases had no fibrous stenosis. There was almost complete occlusion for a time in the case of the elderly lady, and in the case of the young lady one tube was occluded for a time, although it finally let up under treatment.

Dr. Max Thorner, Cincinnati:—I think Dr. Snow has been unusually successful in the treatment of his cases; I am sorry to say that my experience is not so good. It may be that I have not continued my treatment of cases long enough, not so long as he has. I believe, however, we have to differentiate between the different kind of cases. If we have obstructions of the nose in these cases, with the nasopharynx and the Eustachian tubes congested, or their mucosa thickened, we are very likely to improve our patients by removing the obstruction, and by treating the chronic pharyngitis and salpingitis. The judicious use of the probe in the tube is often of benefit in such cases, but patience is required. If we do not succeed at first we must try again. Good results are also liable to result from the faithful employment of massage of the Eustachian tube. But there is a class of cases which does not offer so much hope to the patients; cases in which an inflammatory condition has run its course, resulting in an atrophic condition of the walls of the Eustachian tube, where the drum head is retracted, where the chain of ossicles is ankylosed, in short where sclerosis of the middle ear exists. I do not think we can expect very good results from treatment in these cases. It is my experience that these cases of gradual, progressive deafness offer a very poor prognosis. However, I have gleaned some information from Dr. Snow's paper, which I shall be pleased to try in practice.

Dr. Charles W. Richardson, Washington, D. C.—I was pleased to hear Dr. Thorner's remarks on this paper. I think many of us have had cases of gradual, progressive deafness which go on from bad to worse, in spite of all

that we can do for them, in spite of any treatment which we can institute. These are cases of the sclerotic type, attended with sclerosis of the mucosa, ankylosis, fixation of the stapes and changes in the round and oval window. No doubt all of us have met with these cases, where our best efforts are of no avail. We have, of course, many remedies to alleviate, if not to cure, these cases, but, in my experience, it has been very hard to hold patients under treatment for any length of time if some good results are not produced to give them courage, more especially when the Doctor himself, cannot offer much hope from his treatment. I have seen in some of these cases where iodine and camphor vapor has been employed, a marked increase in all their symptoms. I believe that in certain cases of inflammation of the tube and of the middle ear cavity, the solution Dr. Snow speaks of, and the treatment which he outlines as of value, I think it extremely hazardous to attempt the same line of treatment in the sclerotic cases. I have seen a number of cases where this treatment has been harmful. Of course, as a rule, we only hear of cases where our treatment does good, we do not generally hear of the cases where harm is done, in some cases I have found it decidedly harmful.

Dr. S. F. Snow, Syracuse, N. Y.: I thank you very much for the kindly way in which you received my paper. One point which I wish to emphasize is the necessity of doing thorough nasal work in cases of catarrhal deafness. I am more convinced every day that if we do our nasal work thoroughly, good results will come in most cases of disease of the middle cavity, though we must not expect too much the first three or four months after operative work. If we do not cure the nasal trouble, our treatment of the ear cavity will be of little avail—our best efforts will only bring temporary improvement. Dr. Richardson speaks of the increase of the tympanitis and in the deafness which sometimes follows the use of camphor and iodine vapor. I have noticed this, but am impressed that it does no permanent harm, the counter irritant effect actually toning up the membranes which soon become tolerant, and the patient is in better shape than when started.

Hemorrhage from the Lower Throat, or Hemorrhage from the Larynx and Lingual Tonsil.* Discussion. Howard S. Straight, M. D., Cleveland, Ohio.

Dr. Chas. W. Richardson, Washington, D. C.: I have been very much interested in Dr. Straight's paper; very much interested because I had thought last winter of reporting a series of cases that sound almost like Dr. Straight's cases. I had not thought of reporting them as laryngeal or post-nasal hemorrhages so much as tubercular hemorrhages. These cases of Dr. Straight's have been interesting to me also, because for periods of two or three years patients have been under my observation who have had copious hemorrhages from the larynx or pharynx, although examination would fail to show the exact site of the hemorrhage, and they were supposed to be laryngeal or post-nasal simply because there was no tubercular lesion demonstrable in their lungs, nor could the tubercle bacillus be discovered in the examination of the sputum. These cases have been followed carefully. The hemorrhage, at times, would range from two ounces to a quart. In one case I was hurriedly summoned; a carriage was sent for me to come at once and attend a hemorrhage case. It was only about five minutes drive. When I arrived they were holding a basin to receive the blood. The patient was a man of two hundred pounds, a man of magnificent physique, and he had lost over a quart of blood. The flow had about ceased when I arrived. I kept him in bed for a few days. Examination at the time showed that the larynx and post-nasal cavity were filled with blood. The discharge was very copious through his nose and pharynx. We could find no evidence of tubercular lesion in his lungs, and no bacilli in his sputum. Inasmuch as I have referred at such length to this case, I might as well end it. During the next two or three years he had several more hemorrhages almost as copious, and about a month ago had three hemorrhages in one night—was almost exsanguinated. For four days after this I saw him daily. Examination still failed to discover any source of the hemorrhage, but I was convinced that such an amount of blood could come from no source but the lungs. On the

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fifth day I found evidence of tuberculosis in the right apex. He is now running the course of the most typical case of rapid tuberculosis which I have ever seen. I fully expect him to be dead when I reach home. This is one of the cases of suspected laryngeal hemorrhage which was undoubtedly from the lungs. No tubercular bacilli had been found in his sputum until the last week.

During the Christmas holidays I saw a gentleman, a brother of one of our distinguished colleagues, who had had hemorrhage of this same type. I telephoned his brother, told him of these hemorrhages, and that I was certain the patient had tuberculosis. He said, no, very positively, that there was absolutely no tuberculosis. He told me that examinations had been repeatedly made, that there was positively no tuberculosis, and that the hemorrhages were from a local laryngeal source. I examined one of the clots and found tubercular bacillus, and in an examination of the lung, found a slight infected area. I saw another case of the same type of hemorrhage about four years ago. He came to me the day after the first hemorrhage and on examination I thought I could distinguish a lesion in his post-nasal cavity. I was suspicious of tuberculosis, but I told him not to worry, that the hemorrhage probably came from the lesion referred to. I treated him for a few days, and then saw him no more for about six months. He then had another slight hemorrhage. I examined his chest and some of the blood clots, but could find nothing. A short time afterward there was a copious hemorrhage. I kept him under treatment of the post-nasal cavity for some time. He gained in flesh, his physical appearance improved in every respect, and he kept on improving. All at once he commenced to run down; examination at this time showed the presence of the tubercular bacillus in his sputum, and he is now in Ashville under treatment for tuberculosis. Therefore I say we must be very careful in asserting that a hemorrhage comes from the larynx or from the pharynx or the post-nasal cavity, unless we can see sufficient in these regions to account for the amount of hemorrhage that takes place. We all know how frequently these hemorrhages do take place from the lungs in which we

can find no evidence of tubercular lesion at all, until, finally, the tuberculosis is fully established.

Dr. S. E. Solly, Colorado Springs, Col.: This is a subject that is exceedingly interesting to me. Living in Colorado, such cases often come under my notice. Of course, we all know that cases of laryngeal hemorrhage do occur and Dr. Straight's case may have been of this type; but in my experience they are very rare. As Dr. Richardson has said, when the hemorrhage is profuse it is generally from the lungs. I have never seen a case of laryngeal hemorrhage in which the hemorrhage was the cause of death, and I cannot but think that the case under discussion was one of pulmonary hemorrhage. We are very apt to think that a case of pulmonary tuberculosis must show absolute signs, although we know that this is not always the case. Pulmonary tuberculosis may occasionally exist for years without exhibiting any of the characteristic signs in the chest, and without bacilli being found in the sputum. Whether the X-rays will help us to discover these cases earlier or not I am not personally sure. We are all working upon this question in Colorado, success has already been expected by good authorities in other places.

I think in a case of hemorrhage where there is no discoverable source that we should examine the temperature carefully. A slight rise in temperature may prove a clue to the diagnosis. Of course the rise would not be large and might be due to the mental perturbation, but if we get a little rise in the afternoon it certainly should be taken into consideration. Tuberculosis may be present, and yet remain limited and quiescent, and yet it does not give rise to advancing disease, that is, the disease will be limited and remain quiescent perhaps for years.

Dr. Robert Levy, Denver, Col.: I would like to ask Dr. Straight if he made a careful search for aneurism in the latter case.

Dr. H. S. Straight, Cleveland, O.: A careful examination revealed no suspicion of aneurism.

Dr. Henry L. Wagner, San Francisco, Cal.: I am reminded by Dr. Levy of a case, I had observed some years ago, where post-mortem examination showed no tuberculosis. The patient had had several hemorrhages

which seemed to come from the trachea, and a careful examination was made for tuberculosis, but nothing could be found, neither any bacilli in the sputum. A careful examination showed a marked pulsation of one tonsil, and I referred him to one of my colleagues for physical examination, by whom the diagnosis: aneurism of the aorta was given. The hemorrhage from the throat was quite profuse and almost impossible to control. Some three or four months later, the patient died, and the post-mortem verified the diagnosis.

Dr. Price Brown, Toronto: About five years ago a man aged sixty-four came under my observation. He was an Englishman, one of your high livers. He consulted me in regard to a hemorrhage from the throat. He weighed some two hundred pounds. I examined his pharynx and found it covered with little blood vessels. He was a very plethoric person, and I thought the hemorrhage might and probably did come from this net-work of veins. I put him on a light diet and he lost about twenty pounds in flesh. I also cauterized several of the little blood vessels in the back of the throat. That was five years ago. He kept his weight down to about one hundred and eighty to one hundred and ninety pounds. He has had several hemorrhages since. He is still alive and an active man, sixty-nine years of age. The short diet is still persisted in. I think the hemorrhage may be due in plethoric persons to hemorrhage through the thin walls of the exposed blood-vessels; especially is this the case with old men.

Dr. F. J. Quinlan: I have been very much interested in the remarks of the various speakers. I think in all such cases of spitting up blood that particular attention should be paid to the lingual tonsil as well as the base of the tongue. The hemorrhage is frequently associated with a varicose condition of the vessels. These hypertrophied tufts are frequently congested and filled with blood, and the blood vessels may be very easily ruptured by coughing or any unusual exertion. It is well, therefore, to carefully scrutinize these parts. It is wise for us to be cautious in the removal of this redundant tissue and not to cut too deeply, especially if the parts show marked vascularity.

I think one of the speakers has said, that in arriving at

a diagnosis. the temperature should be taken into consideration. If there is a tuberculous condition, there is almost certain to be a slight rise of temperature, and a more or less acceleration of the pulse, though perhaps no bacilli may be found.

Some Anatomical Points in the Structure of the Lingual Tonsil of Practical Bearing on its Pathology. (Abstract.)

By Lennox Browne, F. R. C. S.: Though some observer has stated that the lingual tonsil enters into a period of atrophic retrogression at the age of puberty, and further that in early adolescence, at the age of twenty years, the lingual tonsil ends by being reduced to some follicles of lenticular shape, so scattered as to represent complete atrophy, the author takes the opposite position. Experience has demonstrated that chronic hypertrophic inflammation of this glandular structure is without doubt the most common form of disease affecting this tonsil.

The difference between the lingual tonsil and the tonsil situated in the fauces and upper pharynx, is that the former does not possess the tendency to atrophy at puberty, but on the contrary grows while the others relatively diminish.

It is exceedingly rare to find a hypertrophied condition of the lingual tonsil before puberty. Few such cases are recorded. In one of the cases reported by McBride there were no symptoms. In the other reported by Hickman, the condition was congenital, and death resulted shortly after birth from asphyxia, directly referable to the growth.

Histologically we find in the pharyngeal tonsil patches of honeycombed homogeneous colloid-looking substance enclosed in what is apparently the remains of a lymph vessel, for these channels are for the most part much dilated. This appearance of the tissue points to a retrograde metamorphosis. Such changes are never seen in the faucial or lingual tonsils.

The mucous and albuminous glands of Henle and Salter are only occasionally seen in the palatine tonsil and never in the pharyngeal structure, are abundantly present in the lingual tonsil, it being exceptional not to find them.

In the crypts which are at times found in the fourth ton-

sil, columnar ciliated epithelium are seen, a peculiarity not found in the other tonsils.

Superficiality of the veins at the base of the tongue is quite frequently seen, and they may be present and give rise to unpleasant symptoms, even though the lymphatic structure is not hypertrophied.

The author mentions a case of pharyngeal tenesmus occurring in a female patient, seventy-two years of age, caused by an enlarged lingual tonsil, thus proving that the gland does not tend to atrophy at puberty.

Acute inflammation, simple or infectious, are not a common involvement of this region. The suggestion is made that the comparative immunity to bacillary infection enjoyed by the lingual tonsil is due to the greater flushing of this area by the abundant secretion of the mucous and albuminous glands.

The severe pain which is at times experienced in diseases of this tonsil is due to direct stimulation of the glosso-pharyngeal nerve, while existing laryngeal symptoms probably result from reflex irritation of fibres of the superior laryngeal nerve supplying this site.

The superficial and plentiful arrangement of the venous plexus at the lingual base may account for the tendency to chronic enlargement and engorgement as a result of vocal abuse.

Pharyngitis varicosa may cause bleeding, and so give rise to false diagnosis. Such a case is mentioned by the author. "Throat hemorrhoids" is a term which graphically describes these enlarged and lingual veins.

The imaginary ulcer may arise from hypertrophy and varix of the lingual tonsil, or in another situation. A site which is prone to pathologic processes are the "fimbriæ linguae," two rough patches seen on each side of the tongue, just in front of the anterior faucial pillars.

Dr. Wendell C. Phillips, New York: I did not have the pleasure of hearing all of the paper. It has been my experience that removal of the hypertrophied tissue at the base of the tongue has not usually been followed with great improvement to the singing or speaking voice, but much relief to the painful irritability of the throat may be expected.

Dr. Max Thorner, Cincinnati: I do not think Dr.

Straight is entirely wrong in the matter of too frequent operations upon hypertrophied tonsils, and that often the enlarged tonsil does no harm; but on the other hand I have seen very excellent results produced by the removal of the hypertrophied growth. I think in making our examinations that at times we do not make them sufficiently complete. The trouble is not always located in the pharynx nor in the laryngeal region, but on the base of the tongue. There are many conditions which do not need operations; cases of acute inflammation of the lateral region of the tongue and of the lingual tonsil. These affections are very painful, and the patient goes from one physician to another for relief, but strange to say the actual source is often overlooked. If you look into the mouth with a tongue depressor, you cannot see the trouble. If you take a napkin and draw the tongue well forward and sideward, you will see these regions very distinctly, and will frequently discover inflamed spots on the side of the tongue as small as pin heads. These may be treated if actually inflamed by any of the astringents; nitrate of silver in 5 to 10 per cent. solutions is often very beneficial. If the lingual tonsil is very much enlarged, however, as the result of the chronic inflammation, or if the papillæ on the side of the tongue are greatly hypertrophied, and are a constant source of irritation, nothing will give better results than their removal by either clipping them off, or destroying them with the galvano-cautery.

Dr. Dwight L. Hubbard, New York City, N. Y.: It seems to me in a study of this kind we should not entirely overlook the several constitutional conditions which exist, such as a rheumatic diathesis, uric acid, etc., etc. There is another point, also which should not be overlooked. Patients with enlarged lingual glands will always have a throaty condition of the voice, and I think this is sometimes caused by not using the voice properly, not calling into use the air chambers above. The volume of air is not carried upward or forward with sufficient effort, and the voice lacks resonance. In these cases it is our duty to remedy any pathological condition of the pharynx, to treat these disturbances, and also to teach the patient how to use the voice properly in order to produce a proper head or nasal resonance. By little instruction in this latter particular you will find your patients will gain in range in the upper and lower registers with a decided clearing up of the throaty quality.

Deductions From a Study of Unilateral Nasal Stenosis.
—Lewis A. Coffin, New York. (Abstract Dr. Coffin's

Paper.) By stenosis is meant that stenosis, partial or complete, arising primarily from a deformed septum.

More air passes through the free side than would if that nostril were of normal potency. The membranes therefore act functionally upon more air, and are more open to irritation, and possibly to a greater negative pressure.

The free side, from the overwork, or irritation, or both, frequently presents an hypertrophied condition, the membrane of the obstructed side appearing normal, or less hypertrophied.

When in the free side we find an atrophic condition, in the obstructed side the membranes appear less atrophied, hypertrophied or normal.

More advanced disease of the membranes in the obstructed than in the free side is seldom seen.

Reasoning from the above, hypertrophic rhinitis is a result of overwork or irritation, and atrophic rhinitis is a condition following and dependent upon an earlier hypertrophy.

In all inflammatory catarrhal diseases of the nose, we should pay proper attention to cleanliness, and remove existing obstructions. Our aim should be to throw less work on the membranes of that organ, by seeing that our patients breathe a proper air, or by plugging the nares.

The density of air in an open cavity will be modified by the velocity, volume or direction of a current of air passing over its opening. Inasmuch as accompanying a unilaterally stenosed nose, we may have catarrhal disease of either or both ears; we can attribute the change in the ear to the negative pressure produced in the Eustachian tube by the change in the current of air passing over its open end.

Deductions From a Study of Unilateral Nasal Stenosis.—Lewis A. Coffin, M. D., New York.—Discussion.—A woman who was treated by me some three years ago, had the most exaggerated case of atrophic rhinitis in one nostril that I have ever seen. There was complete closure of the other nostril, due to a deviated septum. I induced her to allow me to operate upon the septum, and without any further treatment of the atrophic rhinitis, she disappeared entirely from my notice, for a period of about one and a half years, then she returned. There had been no treatment except more or less desultory attempts at cleansing. I found entire absence of disagreeable odor, and in the nasal cavities a small quantity of thin mucus, not especially adherent and easily removed. With the re-establishment of normal nasal breathing in each nostril, nature had largely cured the atrophic condition. When one nostril does all the work, atrophy is likely to occur, and the stenosis of the opposite nostril, if present, should be operated upon to prevent this atrophy, if for no other reason.

NOTES AND ANNOUNCEMENTS.

(Please address George Morgenthau, M. D., 34 Washington Street, Chicago.)

Dr. Gelosio Chincini has become private-docent of oto-rhino-laryngology at Rome.

The Second Spanish Oto-Rhino-Laryngological Congress has been postponed till the spring of 1899. The exact date will be announced later.

C. Heath, H. Tilley, St. Clair Thompson, F. Powell, have been appointed members of the staff of Golden Square Hospital for diseases of the throat, at London.

Dr. Edmund Victor Meyer, for some years assistant at Professor Fraenkel's Policlinic for diseases of the throat and nose, in Berlin, has been made a privat-docent at the University.

Dr. W. K. Simpson has been appointed professor of laryngology at the Columbia University Medical College, and Dr. J. E. Newcomb at the Cornell University Medical College, in New York City.

The International monument erected in honor of Dr. Wilhelm Meyer will be dedicated at Copenhagen on the 25th of October. Dr. Felix Semon will speak in the name of the International Committee.

THE MONUMENT TO WILHELM MEYER.

The monument to the discoverer of adenoid vegetations was unveiled on October 25th, at Copenhagen. Sir Felix Semon, of London, the initiator of the proposal to erect the monument, delivered the principal address of the day. It gives us pleasure to print it here:

Mr. Mayor, Ladies and Gentlemen—The Executive Committee of the Wilhelm Meyer Memorial have delegated to me the signal honor to hand over the monument, erected by international subscriptions in his honor, to the care of the Copenhagen municipality. In fulfilling this pleasing task I must regret my inability to address you in the Danish tongue, and for this reason alone I must not trespass long upon your patience. At the same time this occasion is

such a very unusual one that I may be permitted to say a few words pointing out its meaning and importance.

We are assembled here to-day to unveil a monument erected in honor of the late Dr. Hans Wilhelm Meyer. A monument in honor of a physician—that in itself is a very uncommon thing. To be immortalized by the sculptor's art in bronze or marble in a public place, has usually been reserved, from times of old, to some few classes of the community only. Great rulers, benevolent or warrior princes, distinguished statesmen, victorious generals and admirals—these are the privileged mortals in honor of whom most frequently monuments have been erected; more rarely has such a reward fallen to the lot of great artists, poets, painters, musicians, sculptors; still less frequently have men of science, philosophers, law-givers, inventors, and other leaders of intellect thus been distinguished; few and far between are monuments erected in honor of members of the medical profession. Nor is the reason of this far to seek. Slowly and by labor of many is the edifice of scientific medicine being erected. The brain work of the lifetime of a physician usually means hardly a single brick in this ever-growing structure. Even if of uncommon importance, his achievements rarely pass outside a comparatively narrow circle within his own profession; not often is his fame of a rarely universal character amongst his own compeers; still less frequently does it appeal to the imagination, to the gratitude of the community at large. Thus the ordinary fate of the scientific physician, even if in his day he has been successful in promoting, by teaching and writing, the welfare of mankind, as a rule is not of a largely resplendent character. A few complimentary obituary notices, the grateful recollection of some friends and pupils, not as a rule lasting longer than into the immediately following generation, finally a resting place for his name in those corners of medical literature in the development of which he has been most active—this is the summary of the life-work of most leaders of medical profession.

What, then, has been the conspicuous merit of Hans Wilhelm Meyer that he should have been singled out for so unusual an honor as the one which is going to be paid to his memory to-day? The answer is easily given. It is now just thirty-one years since he was one day consulted by a girl, aged 20 years, who suffered from deafness, whose voice was most peculiar, and the expression of whose face was almost idiotic. Treatment directed to the ears and to the throat failed, and it was not until the puzzled observer one day introduced his finger into the space between the nose and throat that an unexpected solution was met with. Instead of penetrating into an open cavity, the finger was arrested by a large, soft, easily bleeding mass, a condition the existence and nature of which in those days formed a *terra incognita*. Meyer succeeded in removing this mass by operation, with the result that the deafness was materially improved, the voice became natural, and the idiotic expression of the face disappeared.

Gratifying as this result was in itself, it was however only then that Meyer's real merit commenced. Schopenhauer has truly said that not he is finder of a thing who lifts it from the ground and drops it again, but he who, takes it up and recognizing its value, keeps it. If Meyer had regarded his experience in the light of a mere pathological curiosity, again years and years might have passed before the importance of the subject was realized. But with the true instinct of the scientific observer who develops what is ultimately to become an important truth from small beginnings, Meyer did not drop the clue which a casual observation had placed in his hands. He began studying the subject in all its bearings; he examined the masses he had removed with regard to their structure, and finding them to be glandular in character gave them the name of "adenoid vegetations;" he investigated the results which obstruction of the space between the nose and throat exercises upon respiration, hearing, articulation, facial expression, general, mental, and bodily development; he examined 2000 Copenhagen school children with regard to the frequency of this affection; he made himself the apostle of his own teaching by proclaiming it not only in his own country, but also in scientific publications abroad. In one word, to such an extent did he realize the true significance of his discovery that he left to his successors merely the addition of more or less important details, whilst the foundation of the edifice erected by him has remained unchanged from the time of his own first publication on the subject.

Nevertheless it cannot be said that this teaching at first made very rapid headway. When in 1881, he introduced a discussion on the subject at the International Medical Congress of London it came almost—I well remember—as a novelty to many of his audience, although that was mainly composed of specialists, and it was only in the next decade that the true importance of the subject was realized throughout the world. It was at first not easy to convince the bulk of the medical profession, the parents of the mostly juvenile patients, and the schoolmasters that a discovery had been made which, like few others in medicine, was of the utmost practical importance concerning the development of a healthy mind in a healthy body of the rising generation, and it needed the irrefutable proof of the surprising improvements seen in the subject of successful operations to make this conviction a universal one. But truth, though slowly, ever forces its onward way, and when Meyer three years ago closed his eyes he had the satisfaction of knowing that the value of his discovery had at last been universally recognized. Already then the number of those who through the timely removal of the obstructing glands had been saved from life-long deafness or from the lasting results of obstructed nasal respiration amounted to many thousands, and the benefits achieved through Meyer's merits will continue to accrue in future times to hundreds of thousands and to millions.

The proposition made immediately after his death to erect a statue to him at Copenhagen under these circumstances met with the

most sympathetic reception; committees were formed in almost every country in which scientific medicine is established; in Great Britain the movement was particularly favored by the patronage which Her Royal Highness the Princess of Wales most graciously extended to it; physicians, surgeons, specialists, general practitioners, grateful parents, former patients showed themselves anxious to contribute their mite toward a truly international monument of gratitude of his contemporaries toward the deceased great benefactor of the human race, and the result we see to-day before us, in the shape of this beautiful and touching monument, which will carry the names of the artists, Messrs. Bissen and Runeberg, to every quarter of the globe.

It is true that in the general chorus of approbation a few dissenting voices have been heard. "What after all," it has been said, "has been Meyer's extraordinary merit? He put his finger up behind a patient's palate, and found an obstruction which he removed, and which turned out to occur more frequently than could at first have been supposed." Very true, but need I remind my audience that the same specious argument has been used against the claims of Christopher Columbus? America had been there all the time, only waiting, as it were, for the bold sailor who dared to go westward until he struck a new continent. But Columbus did it! The naso-pharyngeal cavity had been there waiting for its explorer ever since man in his present shape has been in existence; pathological obstruction of this cavity has been as old as the records of sculptor's art allow us to go back. In the last paper on the subject, which Meyer wrote a few months before his death, he showed that the facial expression of some Greek statues and busts which have come down to our times left no doubt that the originals had been suffering from "adenoid vegetations;" mediæval portraits of historical personages prove the same fact. Any physician might have conceived the idea of investigating the subject as Meyer did in 1868, but it was left to Meyer to do it, and having done so to release the importance of his discovery, whereby he became, without exaggeration, a true benefactor of the human race. That is why we are assembled here to-day, that is why we do honor to his memory.

Gentlemen, the country of Denmark has been rich in producing men of eminence in almost all branches of human activity. If in many instances the nature of their distinction is better known to their own compatriots than to the world at large, this is but natural, and is an experience which is repeated in every country under the sun. There are some Danes, however, whose names are household words throughout the civilized world, whose reputation is not a local but a universal one, and who, whilst their country may be justly proud of them, belong, as it were, to mankind at large. Need I mention the names of Tycho Brahe, of Bertel Thorwaldsen, of Hans Christian Oersted, of Hans Christian Andersen, of Niels Gade? To those great names I think may be reverently added the name of Hans Wilhelm Meyer, one of the greatest benefactors to mankind medicine has known.

Mr. Mayor, in the name of the subscribers to this monument, who have gladly contributed toward this external sign of gratitude erected in memory of your great compatriot, I have the honor to deliver the monument of Hans Wilhelm Meyer to the safe keeping of the municipality of Copenhagen.

INDEX TO VOLUME VII.

ORIGINAL COMMUNICATIONS.

- A CASE of abscess of the temporo-sphenoidal lobe presenting unusual features—operations—recovery, 29.**
A case of adeno-carcinoma of the nose, 249.
A case of nasal fibroma. A supplementary report, 263.
A case of rhino-pharyngeal fibroma, with projections extending to both anterior nares. (Cystadenoma fibromatosum vasculosum), 263.
A case of sigmoid and lateral sinus thrombosis from acute suppuration of the middle ear—operation—relief—subsequent abscess in the temporo-sphenoidal lobe of the brain—operation—death—autopsy, 49.
A review of the pathological conditions affecting the lingual tonsil, 449.
Abscess of the temporo-sphenoidal lobe, 29.
Abscess, otitic cerebellar, 33.
Abscess, otitic cerebellar, 445.
Abscess, otitic cerebellar, 625.
Acute suppuration of the middle ear, 656.
Adeno-Carcinoma of the nose, 294.
Arytenoid cartilage. Perichondritis and necrosis, 643.
Aural cases, some unusual, 15.
Auricle, othamatoma and chronic perichondritis of, 267.
Autophony, the so-called, (that is, pathologic resonance of one's own voice), 516.
CHOLESTEATOMA of the ear, 497.
Chronic inflammation of the pharyngeal tonsil, with little hypertrophy, 253.
Contribution to the importance of Laryngoscopy and of the application of roentgen rays in cases of aortic aneurisms, 225.
DEFLECTED nasal septum, the after treatment of, 461.
Diseases of the nose and throat in relation to general medicine, 19.
EAR, cholesteatoma of, 497.
Epithelioma, primary, of the antrum of highmore, 271.
FOREIGN body in the larynx and a modification of Kirstein's autoscopy, 256.
GROWTHS, horny of the ear and keloids of the lobule of the ear, 609.
HEMORRHAGE of the larynx, with cases, 278.
Horny growths of the ear and keloids of the lobule of the ear, 609.
INTRA-NASAL operations, serious consequences following, 241.
LARYNX, foreign body in, and a modification of Kirstein's autoscopy, 256.
Larynx, hemorrhage of, with cases 278.
Laryngoscopy, importance of, and of the application of Roentgen rays in cases of aortic aneurisms, 225.
Lingual tonsil, pathological conditions affecting the, 449.
MASTOIDITIS—When to operate and how, 664.
Mastoiditis with operation, followed by unusual complications, 274.
Middle ear, acute suppuration of, 656.
NASAL fibroma—a supplementary report, 263.
Nasal septum, sarcoma of, 239.
Neuroses, reflex and the neuropath, 257.
Nose and throat in relation to general medicine, 19.
ON the cause of stuttering, 688.
Othamatoma and chronic perichondritis of the auricle, 267.
Otitic cerebellar abscess, 33.
Otitic cerebellar abscess, 445.
Otitic cerebellar abscess, 625.
PARALYSIS, posticus, 676.
Perichondritis and necrosis of the arytenoid cartilage, 643.
Pharyngeal tonsil, chronic inflammation of the, 253.
Posticus paralysis—paralysis of the crico-arytenoides posticus, 676.
Primary epithelioma of the antrum of Highmore, with history of a case, and two camera lucida drawings, 271.
REFLEX neuroses and the Neuropath, 257.
Report of a case of mastoiditis with operation, followed by unusual complication, 274.
Rhino-pharyngeal fibroma with projections extending to both anterior nares 263.
SARCOMA of the nasal septum, 239.
Serious consequences following intranasal operation, 241.
Sigmoid and lateral sinus thrombosis, 49.
Sinusitis, suppurative frontal, 1.
So-called autophony (that is, pathologic resonance of one's own voice), 516.
Some unusual aural cases, 15.
Stuttering, on the cause of, 688.
Suppurative frontal sinusitis—its radical treatment by the method of Ogston and Luc, 1.
THE after treatment of restored deflected nasal septum, 461.
The submerged tonsil, 649.
The technique of tympanic inflation, 284.
Tonsil, the submerged, 649.
Tympanic inflation, the technique, 284.
WHEN to operate and how, in mastoiditis, 664.

ABSTRACTS.

I.—EAR.

- ABSCESSES in the neck consequent on the diseases of the ear, 714.
 A case of chronic suppurative middle ear, with intra-cranial complications, 572.
 A case of deafness with disturbances of equilibrium and pulsating exophthalmus, 708.
 A case of epithelioma of the middle ear, 715.
 A case of hysterical nerve deafness, with spontaneous recovery, 716.
 A case of Homolateral acute affection of the auditory, facial and trigeminal nerves, 76.
 A case of morbus meniere caused by leukemic diseases of the acusticus, 297.
 A case of mastoid periostitis, 79.
 A case of otitic brain abscess from chronic otorrhea, 85.
 A case of perisinus epidural abscess, with facial paralysis, 539.
 A case of suppurative phlebitis of the lateral sinus, 52.
 Actual status of our knowledge of rarefaction of air in the external meatus, and of massage of the ossicles, 348.
 Acquired and congenital occlusion of the auditory canal, 525.
 A combined eustachian inflator and ear and nose douche, 714.
 Acute catarrh of the middle ear as a sequel of grippé, 90.
 Acute inflammation of the middle ear, 701.
 Acute inflammations of the middle ear, surgical treatment of, 315.
 Acute myringitis, 354.
 Acute purulent otitis media, 538.
 Acute purulent otitis media in children, 32.
 Adenoid vegetation and deaf-mutism, 319.
 Advance in oral instruction of the deaf in Illinois, 529.
 Affections of the ear in gouty people, 528.
 A foreign body in the ear, 59.
 Air douche through the tube into the middle ear, 80.
 Analysis of thesis. Study of noises in the ears, 699.
 A new constant-current ear syringe, or injector, 338.
 A new operative method to prevent the re-adhesion of the handle of the malleus to the wall of the labyrinth, 323.
 Antro-tympanic disease and Bezold's mastoid abscess, 346.
 A rapid method of making graphic charts of hearing power for various tones, 528.
 Aural affections, influence of diseases of the nares and pharynx on, 537.
 Aural clinic, annual report of the Royal University, at Halle, 70.
 Aural exostoses, 716.
 Aural reflexes, 716.
 BILATERAL syphilitic ulceration of the auricle, 322.
 Brain abscess following otitis media, 522.
 Brain, malignant tumor of, originating in the middle ear, 56.
 Burns of the meatus auditorius externus, and of the membrana tympani, 353.
 CARE of ears in early life, 696.
 Cerebral abscess, cases of, 530.
 Cerebro-spinal fluid, spontaneous discharge of, through the external meatus, probably through a congenital fistula, 62.
 Cholesteatoma, abscess of the brain, 351.
 Chronic middle ear suppuration, cerebral abscess, 87.
 Chronic otitis media purulenta, 53.
 Chronic suppurative otitis media, followed by cerebral abscess and suppurative meningitis, 527.
 Chronic suppurative otitis media, treatment of, with picric acid, 78.
 Clinical and pathologic anatomy of neoplasms of the external ear, 359.
 Cod liver oil in chronic adenitis with otorrhea, 521.
 Contribution to the causistry of foreign substances in the tympanic cavity, 343.
 DEAF-MUTE children, the teaching of singing to, who have preserved a part of hearing, 755.
 Deafness and tinnitus, on the surgical treatment of, 330.
 Deafness, the discernment of, on one or both sides, 309.
 Deafness on both sides appearing three days after a fall on the occiput, 334.
 Diseases of the mastoid—their course and treatment, 345.
 Double massage and its value in diseases of the middle ear, 71.
 Drum membrane, indications for paracentesis of, 88.
 EARACHE: causes, treatment, 713.
 Earaches, prompt attention to, in infancy and early childhood, 704.
 Ear, clinical and anatomical points relating to, 537.
 Ear, contribution to the study of affection of, gouty people, 66.
 Ears, lesions of, are often determining causes of agoraphobia, 704.
 Ear, on the functional examination of, with an exhibition of Bezold's continuous tone series, 702.
 Ear-vertigo from anemia of the labyrinth, 59.
 Electric drill in operations of the mastoid and temporal bone, 704.
 Eustachian tube, what can be accomplished by treatment of, 344.
 Excision of the ossicles for chronic purulent otitis media, 527.

- Exostosis of the external auditory canal, 715.
Extra-dural cerebral abscess of aural origin, 313.
- FACIAL** paralysis occurring in the course of middle-ear disease, 522.
Fallacies in the physiology and functions of the labyrinth, 718.
Forced conservative treatment of a surgical mas'oid case, 52.
Foreign body in the ear and nose, 698.
Fractures at the base of the skull and consequent hemorrhages in the labyrinth of the ear, 298.
Fracture of the cartilages of the external ear, 354.
Further results in treating the ears by massage methods, 336.
- GRAVITATION** abscess under pars mastoidea and retro-pharyngeal abscess, 326.
Goutiness in its relations to the ear, 58.
- HAIR-CELLS** of the acoustic and ampullar areas of the ear, 351.
Hearing, tests of the acuteness of normal, 54.
Hyperostoses of the external auditory meatus, 61.
Histological and pathological contribution on the malleus and incus, 60.
Historical sketch of the operation upon the mastoid process, 362.
Hygiene of the ear, 701.
- INFLUENZA** in its relations to the middle ear, 706.
Internal ear deafness following mumps, 333.
Intracranial abscess, three cases of, 531.
Intracranial complications following acute suppurative inflammation of the middle ear, 96.
Intracranial complications of otitic origin, 88.
Intra-cranial extension of a middle ear suppuration, 90.
Intra-tympanic surgery, 58.
Intra-tympanic surgery, especially in chronic purulent otitis media, 314.
- JAPANESE** ivory, 78.
- LABYRINTHINE** dizziness resembling Meniere's disease, 75.
Lymphangio-sarcoma of the external auditory canal, 363.
- MASTOID**, acute and chronic caries and necrosis of, 335.
Mastoiditis, 521.
Mastoiditis, 718.
Mastoiditis, a case of bezoid, with extension to the posterior part of the neck, 325.
Mastoid operation, delayed, 95.
Membrana tympani, permanent closure of dry performance of, 54.
Meniere's disease, 313.
Meningitis serosa cured by operation, 335.
Middle ear affections in early childhood, 349.
Middle ear and mastoid suppuration in a diabetic patient, 77.
Middle ear disease, suppurative, with its relation to the Exanthemata, 373.
- Middle ear ossicle forceps, 521.
Middle ear, pathologic changes in, occurring during measles, 347.
Middle ear, some remarks on the treatment of chronic suppuration of, 88.
- NECROPSY** of a case of pure verbal Deafness, 97.
Nervous deafness in diphtheria, 95.
New combination chart for the examination of school children's eyes and ears by teachers, 321.
Noises in the head, 67.
Note on a case of hemorrhage from the ear, 522.
- Observations made in the Calisson of the New East River Bridge as to the effects of compressed air upon the human ear, 338.
On the retro-auricular opening after the radical operation for chronic Middle ear suppuration, 535.
Operation in mastoid disease, symptoms for, 53.
Operations on the drum-membrane, and for the improvement of the hearing, 60.
Ossiculotomy in chronic suppuration of the middle ear, 335.
Otic brain abscess of left lobus temporalis, 352.
Otic brain disease, some of the general principles which should govern operations for, 69.
Otitis media, chronic suppuration, with extensive destruction of the mastoid process and temporal bone, 344.
Otitis media, the treatment of chronic suppurative, 347.
Otitis Media, three cases of suppurative, 351.
Otology in the out-patient department, 91.
Otomasthenia — muscle deafness, 352.
- PARALYSIS** of the facial nerve in the course of an acute otitis media — recovery, 709.
Paralysis of the left vocal cord of alcoholic origin, 68.
Pathological changes of the middle ear in measles, 86.
Periauricular abscess after circumscribed external otitis, 530.
Periauricular abscess in furuncle of the external auditory canal, 341.
Perception of sound with one and with both ears, 53.
Perforation of the drum-membrane, diagnosis of, 57.
Perichondritis of the auricle, 308.
Peripheral polyneuropitis of the auditory and laryngeal nerves, 91.
Phenomena observed at various stages of the operation for section of the incudo-stapedial articulation and mobilization of the stapes, 321.
Pneumatic massage of the tympanic membrane and ossicles, 540.
Primary epithelioma of the tympanum, 357.
Profuse hemorrhage from the external auditory meatus, secondary to an injury, 85.
Pulmonary tuberculosis, climatic vs. serum treatment of, 755.
Pyemia, originating from the ear, 297.

- REMOVAL** of a large Cholesteatoma of the temporal bone through a big opening in the auditory canal, 81.
- Report** of two cases of suppurating *M. stoliditis*, 314.
- Rupture** of the ear drum not necessarily incurable 530..
- Rupture** of the tympanic membrane from indirect violence, 541.
- SARCOMA** of the internal auditory canal, 699.
- Sclerosis**, an initial symptom, 96.
- Sclerosis** of the ear, mechanical vibrations applied to the dorsal spine as treatment for, 701.
- Significance** of lumbar puncture in diagnosis of otitis with intracranial complications, 340.
- Sinus** disease of otitic and rhinitic origin and general infection, 709.
- Some** modern aspects of deaf-mutism, 81.
- Some** unusual causes of otalgia, 530.
- Sound** produced in the perforated drum-head, 701.
- Statistical** report of the ear patients treated during the years 1893-1896 inclusive, 698.
- Suppurative** inflammation of the middle ear during broncho-pneumonia, 79.
- Suppurative** otitis media—anatomical observations which explain why mastoiditis does not occur with more frequency in cases of, 62.
- Surgery** in obstinate neuralgia of mastoid region, 536.
- Surgery** of the pneumatic sinuses of the skull in relation to ophthalmic and aural surgery, 714.
- Surgical** anatomy of tympanic antrum, 717.
- Syphilitic** labyrinthitis, double, cured in seven weeks, 52.
- TEMPORAL** bone, phosphor-necrosis of, 541.
- Test** of tone-hearing with tuning-forks, 316.
- The** artificial membrana tympani, 525.
- The** cleaning out of the petro-mastoid, 705.
- The** differential diagnosis of vascular and muscular tinnitus aurium, 536.
- The** external ear bitten off and successfully replaced, 522.
- The** relationship of dental irritation to aural disease, 89.
- The** technique of the mastoid operation, 314.
- The** relation existing between Bright's disease and certain ear symptoms, 357.
- Thyroid** extract in ear disease, 95.
- Tone**-height, an apparatus for the constant and even alternation of, 359.
- Tone**-series, the position of the consonants in, 56.
- Traumatic** lesions of the ear, 535.
- Treatment** of sclerosis of the middle ear with thyroïdin tablets, 318.
- Treatment** of strictures of the Eustachian tube by electrolysis, 536.
- Treatment** d'urgence de l'otite moyenne aigue, 337.
- Trephining** of the mastoid for mastoid disease, 350.
- Trephining** in mastoiditis, 708.
- Trichloroacetic** acid, about closing perforations of the tympanic membrane with, 706.
- Trifacial** neuralgia of dental origin, 755.
- Tuning**-forks, notes upon some new low-toned for clinical purposes, 91.
- Two** small contributions, 83.
- Tympanic** neuralgia in connection with abscess of the tongue, 77.
- VIBRATION** in very high tones, estimation of number of, 339.

II.—NOSE AND NASO PHARYNX.

- A CASE** of fatal primary hemorrhage following removal of adenoid vegetations, 115.
- A case** of foreign body in the naso-pharynx, 728.
- A case** of fibrinous rhinitis, 376.
- A case** of nasal syphilis, with pressure symptoms simulating meningitis, 553.
- A case** of pseudo-membranous rhinitis, 719.
- A case** of rhinoplasty, 544.
- A case** of rhinolith, 723.
- A case** of subjective parosmia, 723.
- A differential** diagnosis of empyema of the accessory cavities of the nose, 546.
- An** adenoid forceps, 550.
- An** operation for correcting deformities of the nasal septum, 550.
- Acne** rosacea in its treatment, 719.
- Acute** empyema of the frontal sinus, 388.
- Acute** rhinitis, modern pathology and therapy of, 387.
- Adenoid** disease, 548.
- Adenoid** vegetations and laryngeal stridor, 386.
- Adenoid** vegetation, complications following extirpation of so-called, 727.
- Amaurosis** following intra-nasal operation, 112.
- Anterior** pillars of the fauces, their abnormality, etiology and treatment, 374.
- Antrum** of highmore, acute inflammation of, 106.
- Aqueous** extract of suprarenal capsule in operations, 383.
- Atrophic** rhinitis, contribution to the study of bacteriology of, 98.
- Atrophic** rhinitis, formaldehyde in, 553.
- BLOOD-CYSTS** of the posterior nares, an unusual case of, 380.
- CHANGES** in the turbinated bones in connection with deformities of the septum, 546.
- Chloroform** in cases of invasion of the nasal cavity by Texas screw-worms, 547.
- Chronic** acid and intra-nasal synechia, 551.
- Chronic** posterior pharyngitis, and its treatment with curetting, 722.
- Chronic** suppurative ethmoiditis, 554.
- Conjunctiva**, diseases of, in relation to diseases of the nasal passages, 379.

- Congenital occlusion of the right choana, 377.
 Contribution to the study of nasal syphilis, 556.
 Cystic degeneration of both middle turbinated bodies, 719.
 Cysts of the floor of the nose, 736.
 Cysts and pseudo-cysts of the nasal fossae, 543.
- DEATH** following immediately an operation for naso-pharyngeal adenoids under chloroform, 728.
 Diagnosis and therapy of chronic supuration of the accessory cavities of the nose, 531.
 Digestive disorders caused by naso-pharyngeal catarrh, 107.
 Diseases of the accessory sinuses of the nose, 544.
 Diseases of the eye dependent upon diseases of the nose, 544.
 Douches and washings of the naso-pharynx, 720.
- EMPHYEMA** of the antrum in an infant, 113.
 Empyema of the antrum of high-moore, 560.
 Enlargement of the pharyngeal tonsil, 554.
 Epistaxis as asymptomatic complication during a recent dengue epidemic in Texas, 553.
 Epistaxis and its management, 116.
 Etiology of atrophic rhinitis, 547.
 Etiology of inflammation of the accessory sinuses of the nose, 377.
 Eustachian tube lips, swelling of, causing obstruction of the choanae, 98.
- FACIAL** hemiatrophy, causing deformity of the septum nasi, 535.
 Fibroma of the naso-pharynx, with report of a case, 724.
 Foreign body in the nostril for five years, 725.
 Foreign body in the left nasal cavity and sequele, 543.
 Foreign body in nostril, 547.
 Fractures of the bones of the face, 724.
 Fracture of the nasal bones, 376.
 Frontal sinus, operative treatment of the inflammation, 113.
- GALVANO-Caustic** and nasal synechia, 552.
- HAY** fever, 556.
 Hematoma, abscess and serous cysts, 548.
 Hypertrophy of the inferior turbinate, the effect of on the nasal septum, 724.
 Hypertrophy of the pharyngeal tonsil, 108.
- INJURY** to inferior and middle turbinals in operation for deviated septum, 726.
- LARVE** in the nasal chambers, the use of oil for destruction of, 389.
 Localization of the pains in inflammation of the accessory cavities, 388.
- MALIGNANT** tumor of the naso-pharynx, 543.
 Maxillary sinus, a study of the anatomy of, 385.
- Membranous rhinitis, 105.
 Mental disturbances in turbinate hypertrophies, 556.
 Metastatic uveitis in both eyes, causing blindness, 384.
 Myxedema, with prominent nasal symptoms, 376.
- NASAL** bacteria in health, 389.
 Nasal bougies and drainage tubes, 113.
 Nasal hemorrhage, the control of, 549.
 Nasal polypl, 379.
 Nasal micro-organisms, 116.
 Nasal and post-nasal catarrh, the influence of diseases of the stomach upon, 720.
 Naso-pharynx, observations on some pathologic conditions of, 383.
 Nasal synechia, a conservative operation for the removal of, 113.
 Nasal septum, treatment of prolongation forward, 548.
 Nasal secretion, stomach ailment from, 385.
 New facts about the Ogston-Luc treatment for radical cure of the empyema of the frontal sinus, 114.
 Non-specific perforation of the nasal septum, 387.
 Nose, co-complicated with a rhinolith, fracture of, 723.
- ON** ozena, 545.
 Operation for the removal of nasal synechia, 547.
 Ozena, treatment of by anti-diphtheritic serum, 729.
- PARALYSIS** of the abductors in progressive organic disease, 728.
 Peritonitis — etiology and treatment, 390.
 Pharyngeal polypus, notes on an interesting case of, 549.
 Pharynx, scar tissue in the, following scarlatina, 725.
 Pharynx, large pulsating vessel in, 110.
 Phlegmon of the inferior turbinated body, with necrosis of the turbinated bone, 546.
 Physiologic and pathologic relations between the nose and the sexual apparatus of man, 111.
 Plastic operation for saddle-nose, 387.
 Posterior nares, complete congenital occlusion of, 375.
- REFLEX** troubles caused by swollen middle turbinated bodies, 112.
 Removal of foreign body from the nose after 23 years, 375.
 Resection of the facial and nasal wall of the maxillary antrum, 100.
 Respiratory tract, some manifestations of syphilis in the upper, 379.
 Rhinitis, external, due to Klebs-Loeffler bacillus, 555.
 Rhinitis, notes on a case of membranous, 726.
 Rhinitis fibrinosa, 545.
 Rhinolith, or foreign body, 374.
 Rhinitis atrophica fetida in relation to diseases of the accessory sinuses, 109.
 Rhinoliths, 98.
 Rhinomolosis, 720.
- SARCOMA** of the naso-pharynx, 549.
 Screw worm and its invasion of the nasal cavities, 108.
 Screw worms, report of a case of two

hundred and seven taken from the nose, 107.
 Secondary hemorrhage following the removal of adenoid vegetation, 553.
 Sinusitis, acute-nonsuppurative, from pneumococci, 718.
 Sinusitis, the treatment of, 381.
 Some remarks on atrophic rhinitis, 110.
 Sprays and inhalents, 543.
 Stenosis of the nasal passages, 552.
 Statistical researches on mucous Polyp of the nasal cavities in children and adults, 381.
 Syphilis of the nose, 116.
 Syphilis of the nose and throat, the aix-lla-treatment of, 551.
 THE ASCH operation for deviations of the cartilaginous nasal septum, 381.
 The determining cause of ulcers of the nasal septum, 547.
 The much abused nose, 385.
 The morphology and pathology of the

Pharyngeal pouch of Rathke, 105.
 The nasal septum, 117.
 The nasal hydrorrhea, 110.
 The physiologic Psychology of smelling, 117.
 The rationale of removing adenoids for the cure of chronic suppurative otitis media of children, 728.
 The Texas screw worm, 554.
 The treatment of empyema of the frontal sinus, 574.
 Tonsils, certain conditions, which limit the use of the tonsillotome, 390.
 Tubercular empyema of the maxillary sinus, 107.
 Tuberculosis of the nose, 554.
 Tuberculosis of the nose, 390.

UNUSUAL sized Rhinolith removed with the lithorite, 550.

VEGETATIONS, etiology of adenoid, 384.
 Voice in singers, impairment of, arising from the naso-pharynx, 106.

III.—MOUTH AND PHARYNX.

A CASE of chronic abscess of the tongue, 400.
 A case of chronic abscess of the soft palate, 562.
 A case of unusual defective development in an infant 421.
 A large angioma of the lip 121.
 A new soft palate elevator, 564.
 A remarkable anglo-neurosis of the tongue, 119.
 A recurrent membranous pharyngitis of nineteen years duration, 402.
 Abscess of the soft palate, notes of a case of chronic, 734.
 Anatomical particulars, having relation to the pathology of the lingual tonsil, 558.
 Antitoxin treatment of diphtheria, the serum of exanthemata observed in, 557.
 Antitoxin, sudden death from an immunizing dose of, 565.
 Antitoxin in the treatment of diphtheria, 735.
 Angloneurotic edema of the tongue, 730.
 Arterial varix of the lower lip, 120.
 BUCCO-LINGUAL leucoplaskia, 563.
 CANCER of the lip, modern operation for, 402.
 Chancre of the lip, probably acquired through the use of a "rouge stick," 121.
 Chancroidal tonsillitis, 666.
 Chronic abscess of the tonsils, 119.
 Congenital cleft palate, 395.
 Concerning the absorption of foreign bodies through the tonsils, 570.
 Croupous tonsillitis, 396.
 DEATH rate in diphtheria, 734.
 Diagnosis of diphtheria by the Koplik method, 569.
 Diphtheria bacillus No. 8, 736.
 Diseases of the upper respiratory tracts, non-operative treatment of, 567.
 Diphtheria injection of antitoxin, conferred, 564.

Diphtheria, gangrenous angina, 729.
 Diphtheria paralysis, 550.
 Diphtheria as viewed by the general practitioner during last year, 734.

ELECTRICITY in acute tonsillar inflammation, 561.
 Epitheliomatous tonsil, 733.
 Epitheloma of the lip, method of operating for small, 559.

GLOSSITIS in typhoid fever, 564.
 Glossitis in typhoid fever, 735.
 Glosso-epiglottic phlegmon, 730.

HEMIATROPHY of the tongue, 121.
 Hemorrhage following Tonsillotomy, 736.
 Hypertrophied faucial tonsils, 117.

INDICATIONS for intubation, 735.
 Intubation in diphtheria, 568.

LATENT tuberculosis of the tonsil, 569.
 Lingual tonsil, chronic hypertrophy of the 118.
 Ludwig's angina, or sublingual phlegmon, two cases of, 729.

MACROGLOSSIA, lymphanglectasis of floor of the mouth, 558.
 Modifications of the operation for closing congenital fissures of the palate, 395.

NON-INTERFERENCE of the facial nerve with paralysis of the soft palate, 564.

OBSERVATIONS in diphtheria, 731.
 Oral cavity and its relation to tuberculosis, 401.
 Oropharyngeal Mycosis 564.

PAPILLOMATA of the soft palate, 119.
 Papilloma of the tonsil, 737.
 Peritonsillitis or quinsy: cause and treatment, 736.
 Pharynx, acute millary tuberculosis of, 561.

Pharyngitis herpetica associated with menstruation, 401.
 Porospermiosis-pharyngea, 730.
 Practical versus theoretical tonsillectomy, 395.

REMARKS on pharyngeal mycosis, 570.

Removal of the left half of the tongue for epitheloma, 559.
 Retro-pharyngeal abscess, 557.
 Rheumatic pharyngitis, 736.

SALIVARY calculi, 395.
 Sarcoma of the tonsil, 120.
 Surgery of the faucial tonsil, 117.
 Supratonsillar fossa as the starting point of infection, 565.
 Syphilis, difficult case of late hereditary, 123.

THE innervation of the muscles of the soft palate, 568.
 The supratonsillar fossa and its affections, 396.
 The tonsils as port of entry of serious infections, 731.

The toxin of diphtheria and its antitoxin, 756.

Tongue, what operation can do for cancer of, 391.

Tonsillitis and douloureux with reference to clinical treatment, 118.
 Tonsils, chronically diseased, 123.
 Tonsils, treatment of chronic inflammation of, 395.

Traumatic paralysis of the soft plate, 122.

Treatment of ozaena by anti-diphtheritic serum, 729.

Tracheotomy in diphtheria, 559.

Transillumination in the diagnosis of sinus disease, 563.

Treatment of certain forms of cervical lymphadenitis, 560.

Tuberculosis of the pharynx in children, 400.

Tuberculosis of the tonsil, 396.

URTICARIA; involving the soft palate, 738.

XEROSTEMIA—mouth—dryness, 568.

IV.—LARYNX.

A CASE of agmination secretion of the vocal cords at the seat of election of singers' nodules, 747.

A case of congenital web between the vocal cords, 590.

A new case of hyaline, 407.

A case of laryngectomy, 571.

A case of stigmatic dyslalia, 746.

An extended tracheotomy tube, 411.

Acute dyspnea caused by Trindelenburg's tampon canula, 745.

Acute subglottic laryngitis in grippe, 552.

Air passages, foreign bodies in, 592.

Air passages, foreign bodies in the, 592.

Alterations in the shape of the trachea, 410.

Angina, a case of anterior epiglottic, 741.

Anesthesia, general and local, in laryngology and rhinology, 407.

BODIES, foreign, in the air passages, 132.

Bodies, foreign, in the air passages, 592.

CANCER, contributions to the diagnosis and treatment of laryngeal, 572.

Chronic stenosis of the larynx, 408.

Congenital laryngeal obstruction, 136.

Croup, nitroglycerin in spasmodic, 584.

EDEMA of the larynx in secondary syphilis, 130.

Edema, unilateral laryngeal, in the climacteric period, 743.

Effects of drugs on the tracheal membrane, 137.

Emergency tracheotomy, 138.

Etiology of laryngismus stridulus, 406.

FOREIGN bodies in the air passages, 593.

Foreign body in the air passage, 594.

GOITROUS tumors in the larynx and trachea, 730.

INCURABLE, benignant paralysis of the recurrent nerve after measles, 409.

Indication and contra-indications for surgical treatment of tuberculosis of the larynx, and the results one may expect, 135.

Intubation in membranous croup, 583.

Intubation of the larynx, 745.

Intubation for spasm in a child of 7 months, 740.

LARYNX, partial resection of, 580.

Larynx, rare case of polypl of the, 738.

Laryngeal carcinoma, endolaryngeal treatment of, 585.

Laryngeal spasm, 407.

Laryngeal stridor, congenital, 741.

Laryngeal tuberculosis, clinical exploration of, 746.

Laryngeal stenosis, 581.

Laryngeal stenosis due to advanced tubercular disease, 405.

Laryngeal vertigo, 584.

Ludwig's angina, 746.

MALIGNANT growth in the larynx, 409.

Multiple papillomata of the larynx in young children treated by tracheotomy only, 410.

Malignant neoplasms, on the radical operation for, of the larynx with special reference to thyrectomy, 134.

Malignant tumor of the larynx in a patient with tuberculosis of the lungs, 123.

NEW researches about the functions of the larynx in forming the loud consonants, 134.

Notes on a case of carcinomatous growth in the larynx, 412.

OBSTRUCTIVE laryngeal affections, and their influence upon chloroform anesthesia, 581.

PACHYDERMIA laryngitis; report of two cases, 132.

- Papilloma of the epiglottis, 593.
 Paralysis of the left recurrent laryngeal nerve in mitral stenosis, 588.
 Parakinesis of the vocal cords, 408.
- RECENT observations on intubation of the larynx, 403.
 Report of the progress made in the treatment of laryngeal tuberculosis, 407.
 Resection of larynx, 740.
- SPASMODIC closure of the glottis in the adult, 410.
 Some critical and desultory remarks on recent laryngologic and rhinologic literature, 137.
 Subglottic abscess, 406.
 Submucous hemorrhages from the vocal cords, 741.
 Surgical treatment of malignant disease of the larynx, 404.
 Syphilitic laryngitis, 743.
 Syringomyelia with grave laryngeal troubles, 580.
- THE diagnostic significance of laryngeal abductor paralysis, 413.
 The gualacol treatment of laryngeal tuberculosis, 405.
 The importance of the Roentgen rays in the diagnosis of intra-thoracic tumors of interest to laryngologists, 588.
 The nervous fibers of the larynx which preside over the functions of respiration and phonation, 587.
- The treatment of malignant tumors of the larynx, the tongue and the nose with arsenious acid, 740.
 The stone of a prune in the left bronchus thrown out without tracheotomy after intra-tracheal injection of cold water, 133.
 Throat, rheumatic and gouty affections of, 594.
 Treatment of tuberculosis with cinchamic acid, 128.
 Trachea, the removal of a foreign body from, 582.
 Treatment of laryngeal tuberculosis, 126.
 Treatment of hoarseness in singers and speakers, 571.
 Tuberculosis of the throat, 412.
 Tuberculous laryngitis, 591.
 Tuning fork—vibrations, 131.
 Tuberculosis of the larynx, contribution to the treatment of, 131.
- UNILATERAL laryngoplegia from a traumatic lesion of the spinal cord, 133.
- VOICES, classification of, 582.
- WEIGHT of the laryngeal cartilages, 124.
 Wound of the thoracic part of the trachea, 412.

V.—DIPHTHERIA.

- A CASE of pseudo-membranous (diphtheroid) stomatitis, 424.
 An unusual experience in diphtheritic infection, 418.
 An experience of ninety-six cases of diphtheria in private practice, 416.
 Antitoxin as a prophylactic, 113.
 Antitoxin and treatment of diphtheria, 141.
 Antitoxin in membranous croup, 138.
 Antistreptococic serum, 751.
- BACILLUS diphtheria and its variants in a school in which diphtheria was endemic, 425.
 Bacillus tuberculosis. Life history of, 754.
 Beechwood creosote in the treatment of phthisis, 599.
- CARCINOMA and tuberculosis, a note on concurrent, 750.
- DIPHTHERIA treated with serum, 139.
 Diphtheria, 423.
 Diphtherin, 425.
 Diphtheria, 141.
 Diphtheria, acute degenerations of the nervous system in, 423.
 Diphtheria, an epidemic of, demonstrating its contagious nature and value of immunization, 417.
 Diphtheria antitoxin, with report of cases, 142.
 Diphtheritic infection by apparently healthy individuals, 146.
- Diphtheria, progress in the immunization treatment for, at Berlin hospitals, 419.
 Diphtheria from laboratory infection, 422.
- EXCISION of the tonsils for hypertrophy with recurring tonsillitis, 141.
- IMMUNITY period from diphtheritic antitoxin, 422.
 Intubation with improved instruments, 424.
- KLEBS-LOEFFLER bacillus, 417.
- MUNICIPAL control of diphtheria, 420.
- PATHOLOGY and diagnosis of diphtheria, 416.
- THE antiseptic versus the antitoxin treatment in diphtheria, 138.
 The prophylactic utility of diphtheria antitoxin, 143.
 The treatment of forty-three cases of diphtheria with antitoxin, 141.
 The treatment of laryngeal diphtheria by antitoxin and intubation, 140.
 The treatment of diphtheria, 418.
 Therapeutics of diphtheria, with special reference to antitoxin, 140.
 Tracheotomy in diphtheria in conjunction with antitoxin, 424.

VI.—MISCELLANEOUS; THYROID GLAND; ESOPHAGUS, ETC.

- A CASE of multiple fibro-adenoma of the thyroid with marked calcareous deposit, 605.
- A case of thyroidectomy, 752.
- A case of vicarious menstruation from the lungs, 146.
- A case of recurrent headache relieved by discharge of a fluid from the cranial cavity, 436.
- A contribution to the symptomatology of hay fever, 146.
- A contribution to the treatment of whooping cough, 144.
- A new instrument for removing coins and similar shaped foreign bodies, when lodged in the oesophagus, 567.
- A new electric head lamp for use with the Edison current, 599.
- A salivary fistula of thirty years' standing—operation—cure 428.
- Acute necrosis of the alveolar process of the superior maxilla in a baby two days after birth, 157.
- A fatal case of thyroidectomy, 602.
- A fatal case of thyroidectomy, 434.
- Abnormal respiration in infants from obstruction in the upper air passages, 147.
- Administration of an anaesthetic through a tracheal wound, 144.
- Antitoxin in the treatment of diseases of the eye and ear, 150.
- Anti-streptococcal serum in the mixed infection of tubercnolosis, 152.
- BRONCHIAL carcinoma, 435.
- CATARRHAL sore throat in general practice, 146.
- Clinical cases, 151.
- Clinical facts, 751.
- Climatic changes in pulmonary tuberculosis, 747.
- Climatology in the treatment of pulmonary tuberculosis, 605.
- Cocain in otology and laryngology, 438.
- Cough and its treatment, 154.
- Cough due to causes outside the lungs, 506.
- DIAGNOSIS and treatment of spasmodic stricture of the oesophagus, 604.
- ETIOLOGY of chronic broncho-nasal and gastro-intestinal catarrh, 428.
- Etiology of catarrh of the upper air passages, 158.
- Eucalin-hydrochlorate in rhino-laryngology, 158.
- Eucalin as a local Anesthetic in surgery of the throat, nose and ear, 158.
- Exophthalmic goitre, treatment by means of galvanization, 596.
- Esophagotomy for the removal of a tooth-plate.
- Exophthalmic goitre in children, 606.
- External esophagotomy, 156.
- Exophthalmic goitre, 147.
- Exophthalmic goitre treated with thymus gland, 154.
- Eye and ear practice, "grains of experience," gleaned from, 430.
- FACIAL paralysis, a new symptom in peripheral, 506.
- Foreign body in the oesophagus, retropharyngeal oesophagotomy, 601.
- Foreign body in the alimentary canal, 146.
- Formaldehyde solution in the treatment of diseases of the nose, ear and larynx, 153.
- GOITRE, exercise in exophthalmic, 748.
- Goitre, the operative treatment of, 606.
- Graves' disease with Bradycardia, 602.
- Graves' disease, partial thyroidectomy in eight cases of, 747.
- Gulacolin chronic coughs, 150.
- HALLUCINATIONS of the customary sense excited by hyoscyamin, 436.
- Hay fever, 153.
- Hay fever and Coryza, 145.
- Harelip, 154.
- Hemostatic solution of gelatin as, 750.
- Hiccough with pharyngeal and diaphragmatic spasm characterizing a case of hysteria, 429.
- Holocain in otology and laryngology, 147.
- Hygiene vs. drugs in the treatment of pulmonary tuberculosis, 752.
- IODOFORM, the use of, 157.
- Infiltration anesthesia, 604.
- Influenza and immunity, 430.
- KOENIG'S symptoms in meningitis, 753.
- LIEBMANN'S method of treating stuttering, 152.
- MALIGNANT growths, blue pyoktanin in the treatment of inoperable, 155.
- Mechanical impediment to respiration during anesthesia, 430.
- Mental phases of tuberculosis, 594.
- Muscles of respiration, a new research into, 150.
- NATURAL gas and eustachian inflammation, 434.
- Neck, pathology of tuberculous glands of, 600.
- Nitrous oxide anesthesia, 151.
- Nose and throat diseases, prophylaxis in, 748.
- OBSTRUCTION of the oesophagus, 752.
- Observations and experience with diphtheria antitoxin serum, 142.
- Oesophagus, half-pennies impacted in, 604.
- Oesophagotomy for Jackstone in the upper oesophagus, 599.
- Oesophagotomy, external, for impacted foreign body, 753.
- Oesophagotomy and removal of dental plate, 155.
- Oesophageal anomaly, an unusual, 597.
- Open-air treatment of pulmonary tuberculosis, 597.
- Opiates in the treatment of bronchitis, 598.

- PATHOLOGY** of purpura hemorrhagica, 601.
 Pathologic conditions of the pharynx and contiguous structures during early childhood, 434.
 Pernicious vomiting, controlling, 151.
 Post-diphtheritic palsy and antitoxine, 422.
 Primary sarcoma of the thyroid gland, 156.
QUEBRACHO in asthma, 155.
RECURRENT diphtheria, 139.
 Removal of a sarcomatous thyroid gland without anesthesia, 148.
 Report of a case of cyanosis from elongated uvula, 146.
 Rhinology, laryngology and otology in France, 599.
SARCOMA and erysipelar toxins, 428.
 Serum, antitubercle, in tuberculosis, 754.
 Some clinical facts, 603.
 Some lines of progress in laryngology, rhinology and otology, 431.
 Speech defects, two hundred cases of, at the Philadelphia polyclinic hospital, 153.
 Sterilizer, an electric, for instruments, 437.
 Streptococcal infection and Marmorek's serum, 148.
 Stricture of the esophagus following typhoid fever, 434.
 Successful treatment of diphtheria as compared with antitoxin, 139.
 Syphilis, painful dysphagia evidence, of, 750.
THE ancient and modern instruments used in diagnosis and treatment of diseases of the oesophagus and stomach, 605.
 The antitoxin treatment of tuberculosis, 429.
 The diagnosis of cough, 429.
 The eanuchian voice and its treatment, 143.
 The etiology and study of atrophic diseases of the upper air passages, 430.
 The etiology and therapy of diphtheria, 421.
 The present mortality rate in diphtheria, 142.
 The operative treatment of occlusion of the jaws, 149.
 The surgical engine and its use in bone surgery, 748.
 The tuberculin test in cervical adenitis, 753.
 The treatment of tuberculosis with tuberculin, 155.
 Thiosinamine, 156.
 Tinnitus and its relation to nasal and aural affections, 435.
 Tonsil and adenoid operations under anesthesia by nitrous oxide, and nitrous oxide and oxygen, 428.
 Toxins, the use of animal, in the treatment of inoperable malignant tumors, 749.
 Tuberculosis and its treatment by the later methods, 598.
 Tuberculosis of the upper air-passages, 602.
 Tuberculosis, modern methods in the treatment of, 605.
 Tuberculosis, the modern treatment of, 748.
 Tuberculous patients, the Adirondacks in winter for, 754.
 Tuberculosis, observations upon the specific treatment of, 604.
 Tuberculosis, the serum treatment of pulmonary, 754.
 Tumors of the maxilla, 433.
 WERLHOF'S disease (purpura hemorrhagica), 601.
 X-RAY injuries, 154.

BOOK NOTICES.

- A RHINO-OTOLOGICAL case record, 447.
 Atlas of diseases of the larynx, 447.
 An American text book of diseases of the eye, ear, nose and throat, 219.
 EAR records, 447.
 Electricity in the diagnosis and treatment of diseases of the nose, throat and ear, 608.
 Electricity in diseases of the nose, throat and ear, 219.

SOCIETY PROCEEDINGS.

- PROCEEDINGS of the Mississippi Valley Medical Association, Louisville, Ky., October 5, 6, 7, and 8, 1901, 159.
 Proceedings of the section of otology and laryngology of the College of Physicians of Philadelphia, March 1, 1898, 440.
 REPORT of the fourth annual meeting of the American Laryngological, Rhinological and Otological Society, held at Pittsburgh, Pa., May, 1898, 757.
 SIXTY-FIFTH annual meeting of the British Medical Association, 162.
 NOTES AND ANNOUNCEMENTS, 220, 446, 607, 777.

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INDEX

Horny Growths of the Ear and Keloids of the Lobule of the Ear. By OSCAR DOWLING, M. D., New Orleans, La., Services of DR. A. W. DE ROALDES.....	609
Otitic Cerebellar Abscess. By DR. PAUL KOCH.....	625
Perichondritis and Necrosis of the Arytenoid Cartilage. By W. SCHEPPEGRELL, A. M., M. D., New Orleans, La.....	643
The Submerged Tonsil. By EDWIN PYNCHON, M. D., Chicago.....	649
Acute Suppuration of the Middle Ear. By JAS. E. LOGAN, M. D., Kansas City, Mo.....	656
Mastoiditis.—When to Operate and How. By ANDREW TIMBER- MAN, M. D., Columbus, Ohio.....	664
Posticus Paralysis. By DR. A. KUTTNER and DR. J. KATZENSTEN.....	676
On the Cause of Stuttering. By HOLIGER MYGIND, Copenhagen.....	688
Abstracts from Current Otological, Rhinological and Laryngolog- ical Literature.....	698

I.—EAR—Foreign Body in the Ear and Nose—Statistical Report of the Ear Patients Treated During the Years 1893-1896 Inclusive—Analysis of Thesis. Study of Noises in the Ears—Care of Ears in Early Life—Sarcoma of the Internal Auditory Canal—Mechanical Vibrations Applied to the Dorsal Spine as Treatment for Sclerosis of the Ear—Acute Inflammation of the Middle Ear—Hygiene of the Ear—Sound Produced in the Perforated Drumhead—On the Functional Examination of the Ear, with an Exhibition of Bezold's Continuous Tone Series—The Lesions of the Ears are Often Determining Causes of Agoraphobia—Prompt Attention to Earaches in Infancy and Early Childhood—The Use of the Electric Drill in Operations of the Mastoid and Temporal Bone—The Cleaning out of the Petromastoid. New Surgical Treatment of Chronic Dry Inflammation of the Middle Ear—About Closing Perforations of the Tympanic Membrane with Trichloroacetic Acid—Influenza in Its Relations to the Middle Ear—A Case of Deafness with Disturbances of Equilibrium and Pulsating Exophthalmus—Remarks as to the Right Moment for Trephining in Mastoiditis—Paralysis of the Facial Nerve in the Course of an Acute Otitic Media; Recovery—Sinus Disease of Otitic and Rhinitic Origin and General Infection—Earache; Causes, Treatment, Relation of the Exanthemata Thereto—Surgery of the Pneumatic Sinuses of the Skull in Relation to Ophthalmic and Aural Surgery—A Combined Eustachian Inflator and Ear and Nose Douche—Abscesses in the Neck Consequent on Diseases of the Ear—A Case of Epithelioma of the Middle Ear—Exostosis of the External Auditory Canal—A Case of Hysterical Nerve Deafness, with Spontaneous Recovery—Aural Exostoses—Aural Reflexes—Consid-

erations and Observations on the Surgical Anatomy of Tympanic Antrum—Mastoiditis.....718

II.—NOSE AND NASO-PHARYNX—Acute Non-Suppurative Sinusitis from Pneumococci—Cystic Degeneration of Both Middle Turbinated Bodies—Multiple Mucous Cysts—Acne Rosacea and its Treatment—A Case of Pseudo-Membranous Rhinitis—The Influences of Diseases of the Stomach Upon Nasal and Postnasal Catarrh—Experimental Studies Concerning Douches and Washings of the Naso-Pharynx—Rhinomiosis (Reducing the Nose by Operative Measures)—Chronic Posterior Pharyngitis, and Its Treatment with Curretting—A Case of Rhinolith—A Case of Subjective Parosmia—Fracture of the Nose Complicated with a Rhinolith—The Effect of Hypertrophy of the Inferior Turbinal on the Nasal Septum—Fractures of the Bones of the Face—Fibroma of the Naso-Pharynx, with Report of Case—Foreign Body in the Nostril for Five Years—Scar Tissue in the Pharynx, Following Scarlatina and Complicating Adenoid Vegetations—Injury to Inferior and Middle Turbinals in Operation for Deviated Septum—Notes on a Case of Membranous Rhinitis—Cysts of the Floor of the Nose—Contribution to the Complications Following Extirpation of So-Called Adenoid Vegetation—The Rationale of Removing Adenoids for the Cure of Chronic Suppurative Otitis Media of Children—A Case of Foreign Body in the Naso-Pharynx—Report of Death Following Immediately an Operation for Naso-Pharyngeal Adenoids Under Chloriform—Paralysis of the Abductors in Progressive Organic Disease—Treatment of Ozaena by Anti-Diphtheritic Serum.....729

III.—MOUTH AND PHARYNX; TONSILS, DIPHTHERIA—A Case of Diphtheritic, Gangrenous Angina, Complicated with Mastoiditis. Trephining. Recovery—Two Cases of Ludwig's Angina or Sublingual Phlegmon—The Use of Antitoxin—Angloneurotic Edema of the Tongue—Glosso-Epiglotic Phlegmon—Porospermiosis-Pharyngea—Observations in Diphtheria—The Tonsil as Port of Entry of Serious Infections—Removal of the Epitheliomatous Tonsil by the External Route (Pharyngotomy)—Death Rate in Diphtheria—Notes of a Case of Chronic Abscesses of the Soft Palate—Diphtheria as Viewed by the General Practitioner During Last Year—Indications for Intubation—Antitoxin in the Treatment of Diphtheria—Glossitis in Typhoid Fever—Diphtheria Bacillus No. 8—Rheumatic Pharyngitis—The Toxin of Diphtheria and its Antitoxin—Peritonsillitis or Quinsy; Cause and Treatment—Hemorrhage Following Tonsillotomy—Papilloma of the Tonsil—Urticarin, Involving the Soft Palate, Causing Alarming Symptoms.....738

IV.—LARYNX—Rare Cases of Polypi of the Larynx—Goitrous Tumors in the Larynx and Trachea—Intubation for Spasm in a Child of Seven Months—Resection of Larynx—The Treatment of Malignant Tumors of the Larynx, the Tongue and the Nose with Arsenious Acid—Submucous Hemorrhages from the Vocal Cords—A Case of Anterior Epiglottic Angina—Congenital Laryngeal Stri-

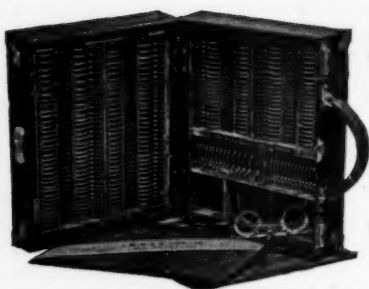
dor—Notes on Syphilitic Laryngitis—Unilateral Laryngeal Edema in the Climacteric Period—Acute Dyspnea Caused by Trendelburg's Tampon Canula—Intubation Tube Retained in the Larynx for Thirty-Eight Days—Intubation of the Larynx—Clinical Exploration of the Laryngeal Tuberculosis—A Case of Sigmatic Dyslalia—Two Cases of Ludwig's Angina of Sublingual Phlegmon—A Case of Agmination of Secretion of the Vocal Cords at the Seat of Election of Singer's Nodules.....747

V.—MISCELLANEOUS; THYROID GLAND; ESOPHAGUS, ETC—A Few Considerations Regarding Climatic Changes and Pulmonary Tuberculosis—Partial Thyroidectomy in Eight Cases of Graves' Disease—Exercise in Exophthalmic Goitre—Prophylaxis in Nose and Throat Diseases—The Surgical Engine and Its Use in Bone Surgery—The Modern Treatment of Tuberculosis—The Use of Animal Toxins in the Treatment of Imoperable Malignant Tumors—Solution of Gelatin as a Hemostatic—Painful Dysphagia Evidence of Syphilis—A Note on Concurrent Carcinoma and Tuberculosis—Antistreptococci Serum—Clinical Facts—A Case of Thyroidectomy—Obstruction of the Oesophagus—Hygiene vs. Drugs in the Treatment of Pulmonary Tuberculosis—Koenig's Symptom in Meningitis—The Tuberculin Test in Cervical Adenitis—External Oesophagotomy for Impacted Foreign Body—Antitubercle Serum (Paquin) in Tuberculosis—Life History of the Bacillus Tuberculosis in Its Relations to the Treatment by Tuberculin—The Serum Treatment of Pulmonary Tuberculosis—The Adirondacks in Winter for Tuberculous Patients—Affections of the Upper Air Passages in Women with Uterine Diseases—Three Cases of Trifacial Neuralgia of Dental Origin, Unaccompanied by Toothache—Climatic vs. Serum Treatment of Pulmonary Tuberculosis—The Teaching of Singing to Deaf-Mute Children Who Have Preserved a Part of Hearing.....756

Report of the Fourth Annual Meeting of the American Laryngological, Rhinology and Otological Society. Held at Pittsburgh, Pa., May, 1898.....757

NOTES AND ANNOUNCEMENTS.....777

APPENDIX.



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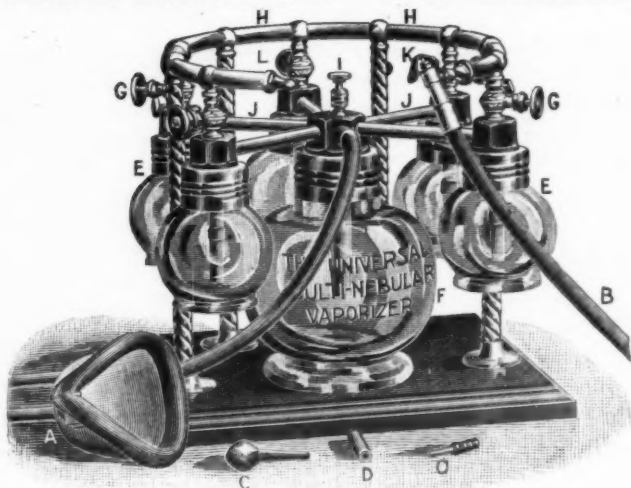
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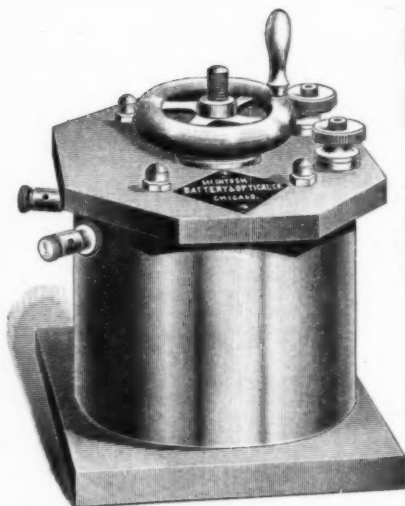
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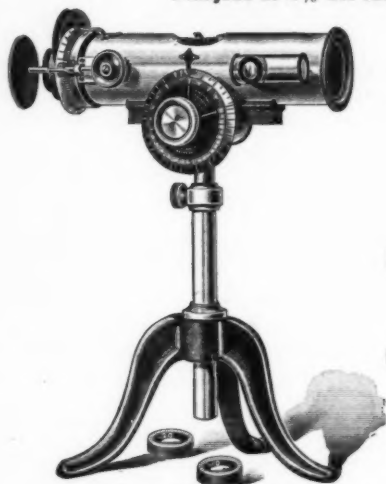
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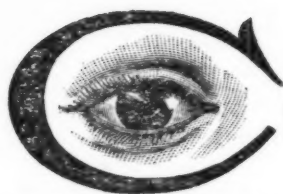
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